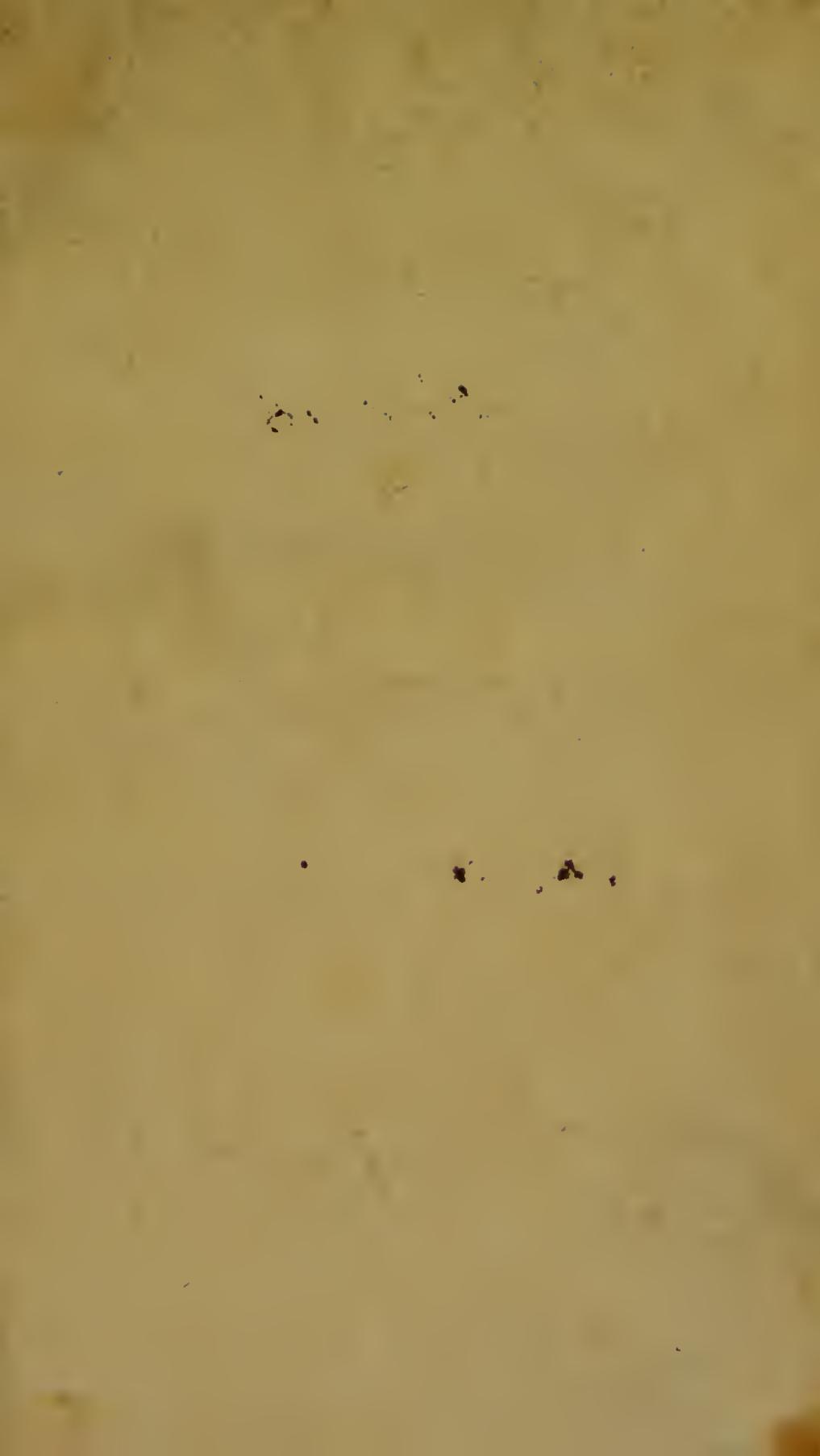






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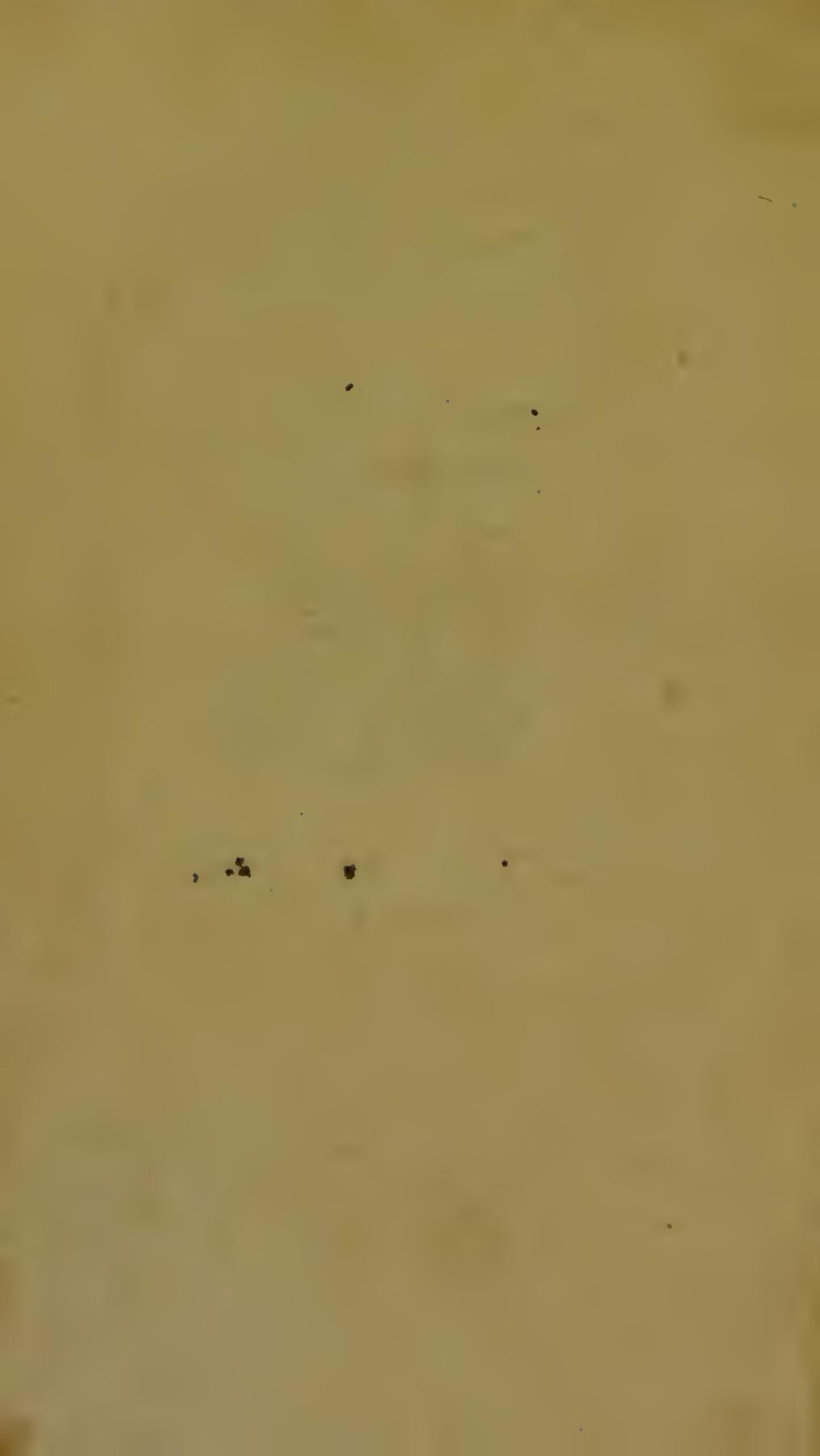


Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.

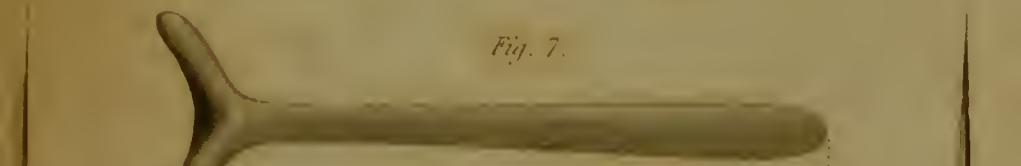
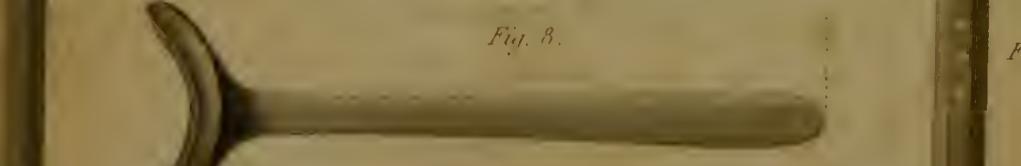


Fig. 8.



A
PRACTICAL TREATISE
ON
CATARACT.

By JOHN STEVENSON,

OCULIST AND AURIST TO HER ROYAL HIGHNESS THE PRINCESS OF WALES, MEMBER OF THE ROYAL COLLEGE OF SURGEONS, &c.
LECTURER ON THE ANATOMY AND DISEASES OF THE EYE AND EAR, AND AUTHOR OF "A PRACTICAL TREATISE ON THE MORBID SENSIBILITY OF THE EYE, COMMONLY CALLED WEAKNESS OF SIGHT."

With the year
Seasons return; but not to me returns
Day, or the sweet approach of ev'n or morn,
Or sight of vernal bloom, or summer's rose,
Or flocks, or herds, or human face divine;
But cloud instead, and ever-during dark
Surround me; from the cheerful ways of men
Cut off, and for the book of knowledge fair,
Presented with a universal blank
Of Nature's works, to me expung'd and ras'd,
And wisdom at one entrance quite shut out.

Milton's Paradise Lost, B. ii.

The Second Edition, with considerable Additions.

London.

Printed for Longman, Hurst, Rees, Orme, and Brown,
Pater-Noster Row.

1814.

W. Thorne, Printer, Red Lion Court, Fleet Street.

TO
HER ROYAL HIGHNESS
THE PRINCESS OF WALES,
THIS TREATISE
IS,
BY PERMISSION,
VERY HUMBLY INSCRIBED,
WITH EVERY SENTIMENT OF
PROFOUND RESPECT,
AND
WITH THE DEEPEST SENSE
OF OBLIGATION AND
GRATITUDE,
BY
HER ROYAL HIGHNESS's
MOST DUTIFUL, FAITHFUL,
AND
MOST OBEDIENT SERVANT,

*Great Russel Street,
Bloomsbury,
January 7, 1814.*

JOHN STEVENSON.

PREFACE.

IN an Advertisement prefixed to the First Edition of this Treatise, the reasons, which led to its Publication in the hasty manner and imperfect form, in which it then appeared, were briefly stated.

Twelve months have since elapsed, which, though a short period for the sale of the whole impression, have allowed me time to arrange the matter in better order; and a great increase of Practice in the interval, has enabled me to make several improvements, and to confirm the propriety and

utility of the principles which I had there inculcated.

On the present occasion, I have entered more into detail, and have introduced some pathological observations, hitherto unnoticed by Writers on Cataract, or on any morbid affection of the Eye. To render these, and every other part of the Work, more intelligible and useful, such appropriate Cases and practical remarks have been interspersed, as my own experience has, in the mean while, suggested and supplied. These additions will be found not inconsiderable, either in magnitude, or in importance. They have unavoidably augmented the bulk of the Volume, notwithstanding the greatest care has

been taken to compress the whole as far as was deemed consistent with perspicuity.

It was my intention, as it has been the custom of late, to annex some coloured Plates. Both the Artist and the Practitioner must, however, be aware of the difficulty, not to say the impossibility, of successfully illustrating, in this way, the *Diseases of the Eye*. Every Engraving, as it appeared well finished and interesting, or, to use the language of the Artist, in proportion as it preserved the effect, I found to deviate from a just representation of the object.

The parts of the Eye are so intricate, the optical illusions so great, that Professors, even in

teaching the theory of Vision, are obliged to use models of detached parts of the Organ ; and with the assistance of such demonstrations, and their own verbal explanations, find it impracticable to make themselves understood, without the closest application on the part of the Student.

The structure of the Eye, in its natural state, should be perfectly familiar to every one, who wishes to study, with effect, its complicated disorders. With such a knowledge, any morbid condition, if accurately detailed, will be readily understood : without it, all description and delineation must be equally incomprehensible.

The same disease, in different persons, and in the same individual, at different times, varies so much in its appearance, as to baffle every effort to

“ Catch 'ere she change the Cynthia of this minute.”

To convey a correct idea of the successive changes which occasionally occur, even in the same Case, would require an indefinite number of Plates; since a single representation could communicate only a conception of one specific feature of the complaint.

Equally difficult must it be to trace the progress of an Instrument by an art, which exhibits only the act of an instant.

I say nothing of the expence

attending the execution of highly finished Engravings, as that would be of little consequence, provided they could be made adequately to answer the purpose of illustration,

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A

TREATISE, &c.

SECTION I.

ON THE NATURE, SEAT, AND DIFFERENT KINDS OF CATARACT.

THE Disease distinguished by the term Cataract,* has for ages been esteemed, on account of its prevalence, the blindness it

* By the antient Greeks, Cataract, (an epithet derived from *Katapáσσω*, deturbo to confound, because it confuses the sight) was call *επιοχυσίς* and *τποχομά*. “Suffusio quoque, quam Græci *υποχύσιν* nominant, interdum oculi pupillæ, quâ cernit, se opponit.” Cels. de Suff. lib. vii. cap. 7.—“Suffusio Latinis, *υποχύμα* Græcis, vulgò Cataracta dicitur, sumptâ uti opinor, denominatione ab illis portis, quæ in oppidis et castris, supernâ deorsum cadunt, et omnem prohibent transitum.” Fabric. ab Aquapendent. Opera Chirurg. de Suffus. p. 57. It was likewise denominated by some,

B

occasions, and its susceptibility of relief by a bloodless operation, one of the most important among the interesting series of ocular derangements, that tend more or less to impair, or wholly to destroy sight. The inestimable value and extreme delicacy of the Eye, added to the lively gratification and professional celebrity consequent upon the restoration of its functions, have concurred to render this malady an object of the highest attention to Practitioners the most eminent

Glaucoma ; “Glaucoma et suffusionem veteres unum eundemque morbum esse existimarunt, &c.” Oribasii Synops. cap. 47, lib. 8. Also Gutta obscura vel caliginosa, and sometimes Imaginatio, by the Arabians : and Suffusio only by the Latins. Vide Galen de usu part. lib. x. cap. 1. Avicennæ Opera a Plem-pio, fol. 1658. Lommius Obs. Med. 12mo. 1560, de Suffusione. Heister de Cataraet. Gendron Traité des Maladies des Yeux, tom. ii. c. 22, p. 244. Maître-Jan Traité des Maladies de l’Œil, prem. part. chap. 1 p. 111, &c.

for their surgical attainments. And the progress of improvement in its treatment has been commensurate with the talents and industry bestowed upon the investigation, and with the more accurate knowledge acquired relative to the anatomical structure of the organ affected. The disorder we are now considering, as it is visible, when fully formed, on the slightest inspection, has been from the earliest periods of medical science, universally ascribed to some opake substance situated within, and occupying the whole or a part of the pupillary aperture, by the presence of which, the rays of light are intercepted in their passage to the retina, the immediate seat of vision.

But in regard to the real character, precise situation, and original formation of the opake substance, very vague and erroneous opinions have at different times prevailed.

Of these, the most remarkable and important, because it materially influenced practice for many succeeding centuries, was the doctrine of Galen,* who having imbibed the vision-

* That his predecessor, Celsus, the Latin Hippocrates, who flourished under the reigns of Augustus and Tiberius, had long before entertained the same sentiment with respect to the lens, is sufficiently manifest from the following quotation : “ *Sub his gutta humoris est, ovi albo similis; a quâ videndi facultas proficiscitur; Κευταλλοιδής a Græcis nominatur.* ” Cels. de Re Medic. l. vii. c. 7, p. 432, edit. 12mo. Amstel. 1687. But as Celsus simply states, without attempting to vindicate and substantiate the doctrine by any satisfactory arguments or experiments on the subject, it probably was not admitted as a dogma, until adopted and promulgated by Galen, a celebrated Greek physician, and contemporary with Antoninus Pius, the 16th Emperor, whose equally voluminous and excellent writings were for many ages appealed to, with almost oracular veneration, as the standards of medical literature. Indeed, such is the extent and universality of medical, and particularly anatomical knowledge, contained in his Works, that the late Dr. Monro of Edinburgh used to say, “ that nobody ought to as-

ary and false notion, that the lens is the essential organ of sight, “*crystallinus humor primum videndi organum*,”* maintained, that the cataract is not, as was commonly supposed, an opacity of the crystalline, but is produced by a congeries of superfluous humours coagulated into a white skin or pellicle, formed before it, in the posterior

sume the honour of a discovery, till he was sure Galen had not mentioned it.” MSS. History of Anatomy, in the Museum.

* Galen *de usu part.* lib. x. cap. 1. This opinion of Galen was warmly espoused and as obstinately defended by several distinguished modern authors and practitioners, even after the true nature of Cataract had been fully developed. See Oribas. *Synops.* lib. viii. cap. 47, edit. 1734. Ambrose Paré, lib. xviii. cap. 19, p. 456, edit. 1623. Mery *Mem. de l'Acad. des Sciences*, 4to. p. 497, 1707. Woolhouse in *Diario erud. mens.* Nov. 1720. Hovius *de Circul. Humor.* in *Ocul. Mot.* 1740. De la Hire, jun. *Mem. de l'Acad. des Sciences*, p. 553, 1707.

chamber of the aqueous humour. In vindication of this hypothesis he argued, (and with reason, had his idea relative to the use and function of the lens been correct) that on the supposition only of the displacement of some intervening opake substance situated in front of the crystalline, could sight be restored by the proeess of Depression. For it were absurd to expect that the faculty of vision, which he believed was inherent in that transparent body, could be regained by an operation, obviously ealeulated to remove it from its natural situation.

Others, not being able to comprehend how this compaet substance could be spontaneously generated in the aqueous humour, a phenomenon so perfectly inconsistent with all the known laws of the animal œeconomy, with a greater degree of plausibility, attributed

it to a film or lamen, which they fancied might, by disease, be detaehed from the cx-
ternal convexity of the lens, and which having lost its pellucidity, spread itself like a thick web, veil, or membrane, before the sight ; constituting what they conceived to be the true Cataract. A more aecurate acquaintance with the meehanism of these parts furnished, however, an easy and complete refutation of that antient theory. For the lens itself being enclosed within a tense smooth capsule, is not in contact with the aqueous humour, and consequently, is incapable of throwing off any layer ; and its enveloping tunic is not of a charaeter to admit of such a separation.

The event which first led to the rational developcment of the true nature and seat of Cataract, may with justice be referred to the

important discovery of Kepler,* who in the year 1604, proved by experiments, illustrated by sound reasoning, that the crystalline being a perfectly diaphanous body, was unfit to retain or reflect light, and that this humour, so

* Vide Kepler, *Paralipomena ad Vitellionem*.—Plempius also, a celebrated physician of Amsterdam, in his *Ophthalmographia*, published in 1639, refuting the commonly received opinion of the lens being the immediate seat of vision, says, lib. iii. cap. 14: “*Di-
camne vero etiam omnibus inopinatum quidpiam?
Aio enim vero crystallinum non nobiliori in oculo
fungi officio, quam aqueum. Et exempto crystallino,
oppletoque loco ab humore vitreo, visionem nihilo-
minus celebratum iri: verum non tam distincte, quam
nunc: confusa enim esset in retiformi pictura, nisi
alio situ, quam quem nunc obtinet, retiformis loca-
retur.*” As, however, this learned author embraced the antient doctrine relative to Cataract, and had not any practical experience in the operation of couching, he must have derived his surprisingly accurate knowledge of the subject from his mathematical researches, and from his profound acquaintance with both the theoretical and practical part of the science of Optics.

far from possessing, as Celsus and Galen asserted, the attribute of vision, is in fact to be regarded only as a double convex lens, or powerfully refracting medium, admirably adapted by its position in the Eye, and by its beautiful transparency and peculiarly dense structure, to converge the rays of light in their progress through it to a focus upon the sensible retina. This momentous fact having been fully and unequivocally ascertained by the sole genius and indefatigable researches of the above-named celebrated mathematician, more rational sentiments on the subject began once more to revive, and gradually to triumph over errors, which for many ages had been universally adopted with unsuspecting credulity.

But the progress of improvement in science is generally slow, and still more tardy

in becoming widely diffused among mankind. Hence, notwithstanding the true nature of Cataract was inculcated in Lectures, and afterwards published by Lasnier,* Rohault,† Borelli,‡ Gassendi,§ and others, yet, as it does not appear, that they confirmed what they ventured to suggest by any direct and satisfactory experiments, their speculations, although correct, had little or no influence in practice; and accordingly, as might under such circumstances be naturally expected, were soon consigned to

* *Recherches sur la Chirurgie*, p. 404. Lasnier was a celebrated surgeon of Paris, who died in 1690, and who, according to Sabatier, received the information from Mr. Quarre, and communicated it to the College of Surgeons before 1651, which was subsequently published by Gassendi, Rohault, and Rolfinckius.

† *Rohault Tractat. Physic*, tom. i.

‡ *Borelli Histor. Medic. Physicæ. 8vo.*

§ *Gassendi Oper. Physic. tom. ii. p. 331.*

oblivion. Such indeed was the overwhelming authority of the first promulgators of the doctrine, and so wedded were persons to the long established opinion of the Cataract being a pellicle in the aqueous humour, (a notion still entertained by the vulgar) that a few only of the more unprejudiced and well-informed, believed the disease to be absolutely situated in the crystalline lens, until the beginning of the 17th century.* About that period, the several interesting publications of Matrê-Jan† in 1707, Brisseau‡

* "Cette vérité n'étoit pourtant encore connue que d'un petit nombre de personnes au commencement de siècle," &c. Sabatier de la Med. Operat. tom. ii. 8vo. 1796.

† Ant. Maître-Jan. *Traité des Malad. de l'Œil.* in 12mo. 1722.

‡ Brisseau *Traité de la Cataracte et du Glaucom.* Tournay, 1706.

in 1709, Heister* particularly in 1711, &c. and St. Ives† in 1721, &c. added to the removal by the latter in 1707, and by M. Petit‡ in 1708, through an incision in the cornea of some opake crystallines which, after depression, had emerged again, and passed through the pupil into the anterior chamber, supported as they were by repeated dissections of cataractous eyes, and subsequently by the operation of extraction, tended effectually to supercede the mistaken ideas of the antients, and to establish the true character of the disease.

* Heister Tract. de Cataract in lente crystall. 1711: De Glaucom: et Amaurosi, 1713; and his Vindiciae against Woolhouse, 1779, by which admirable productions he may be said to have obtained a complete victory over the advocates for the doctrine of Galen, and his followers.

† St. Ives Malad. des Yeux, in 12mo.

‡ Petit. Mem. de l'Acad. des Sciences, 1708, p. 242.

Opacity of the crystalline only occurs most frequently, and is denominated *lenticular* Cataract, and firm or hard, soft or caseous, milky or fluid, according to its relative consistence. Confined to the capsule, it is called *capsular* or *membranous*; and when this form of the disease follows an operation, *secondary* Cataract. The latter species was not perfectly known until the removal of the opake lens through a section of the cornea; a process invented and published by Daviel in 1745, who accurately described, and successfully operated upon it. The opacity may occupy the whole capsule, the anterior or posterior *lamella*, or only a portion of either: in the latter case it is termed *partial* Cataract. There is a small portion of transparent fluid interposed between the lens and its capsule, first discovered by the celebrated Morgagni, from whom it has acquired

the name of liquor Morgagni. This sometimes, though very seldom, becomes turbid, constituting the *interstitial* Cataract ; respecting which Richter, who had only seen one instance, gives the following interesting statement : “ No sooner had I punctured the capsule, by means of La Faye’s instrument, than two or three drops of a whitish fluid flowed out, and the same moment the pupil became clear, and the patient saw. Three months afterwards, a Cataract took place in the same eye, which in all probability was seated in the lens itself. On this account, I think a surgeon would act prudently in all similar cases, were he always to extract the lens, although it should not be opaque at the time of the operation ; for it is always to be dreaded that it may become so in consequence of the injury done to the capsule, and to the lens itself during the

operation."* Occasionally all the above parts are at the same time affected, a state of disease which has received the appellation of *mixed Cataract*. Sometimes the opake capsule, being detached from the tunica vitrea, appears as if agitated by every motion of the Eye, a description of the complaint called by the French *Cataracte tremblante* or *shaking Cataract*. The removal of this species is rarely, if ever, followed by the restoration of sight, the contents of the globe being very generally in a completely disorganized condition.

Cataract may likewise be combined with various other morbid derangements of the organ of vision, and is then denominated

* Richter's Treatise on the Extraction of the Cataract, translated from the German in 1791, 8vo. p. 4. The advice contained in the above Extract is so perfectly correct and judicious, that it ought, under similar circumstances, to be invariably adopted.

complicated Cataract. Many of these are readily discoverable, and do not prevent the success of an operation. When the capsular Cataract, with or without an opacity of the crystalline, has formed preternatural adhesions to the surrounding parts, it is termed the *concreted*, or with greater propriety *adherent* Cataract, and is more or less manageable, according to the nature and extent of the connecting medium. If the opacity be partial only, the sight is simply vitiated and depraved; but if it be uniformly diffused throughout the entire substance of the lens or its enveloping membrane, there is, in that case, a total extinction of all useful vision.

The above species of Cataract refer exclusively to different morbid affections of the crystalline or its capsule, and are therefore comprehended under the term *genuine* Cataract. But when the opaque substance is

situated in other parts of the Eye, then the complaint is by some designated *spurious* Cataract. I shall not detain my readers with a view to justify these terms; a task I more willingly leave to nosologists. It is enough for my present purpose that such terms are in general use, and that they come within the definitions I have offered.—The distinctions alluded to ought, however, to be well understood and duly appretiated by Practitioners, otherwise what is called *spurious* may, as I have known to happen, be confounded with the *genuine* Cataract, and the most serious mistakes be committed in consequence.

SECTION II.

ON THE SYMPTOMS OF CATARACT, INCLUDING PRACTICAL REMARKS ON THE DIFFICULTY WITH WHICH THEY ARE SOMETIMES ASCERTAINED.

THE Symptoms of Cataract may with propriety be divided into *external* or *visible*, and into *internal* or *occult*, of which the patient only is conscious. Its commencement, except in unfavourable cases, or in such as are the effect of accident, is seldom marked by any preceding pain, or accompanying uneasiness. Sometimes, however, I have known it attended with a great degree of intolerance of light, or morbid sensibility of the organ ; a symptom which more frequently happens without Cataract, and of which I have given a more full description,

with the proper mode of treatment, in my former publication on the Eye.* The earliest *internal symptoms* of the incipient disease, occurring without any assignable cause, and which are experienced by the patient, antecedently to any perceptible opacity in the pupil, are a slight sense of weakness or imperfection of sight, together with a *settled mist* before the eyes, which obscures all objects, and confuses those that are minute. The *constancy* and *fixedness* of this *mist* serve to distinguish the complaint from many occasional and transient defects in vision, arising from hysteria, and sympathy of the eye with a disordered stomach; as well as from those ocular hallucinations, the result of a derangement in the functions of the

* Vide Practical Treatise on the Morbid Sensibility of the Eye, commonly called Weakness of Sight. 8vo. Longman and Co. 2d Edition, 5s.

optic nerve, or its medullary expansion, viz. the delusive appearance of dust, cobwebs, flies, and other fantastic imaginary objects, floating in the air. These suffusions, Maître-Jan,* St. Ives,† Baron de Wenzel,‡ &c. have represented as equally characteristic of the *first* stage, both of Cataract and Gutta Serena. To this opinion I cannot however implicitly subscribe, since from numerous inquiries on the subject, I feel justified in stating, that though these symptoms are undoubtedly sometimes associated, they certainly bespeak a morbid affection of the retina, rather than of the lens, and have by no means a necessary connection with Cataract. How far the co-existence of these symptoms, arising from a disease of another

* Maître-Jan *Traité des Malad. de l'Œil.*

† St. Ives *Traité des Malad. des Yeux.*

‡ Baron de Wenzel *Traité de la Cataracte.*

part of the Eye, may be an objection to an operation, shall be considered hereafter.

The affected eye becomes generally at an early period myopic, viz. the sight begins to shorten, the patient being capable of seeing *near* objects *only* with perspicuity, the more *distant* appearing as if enveloped in a *cloud* or *thick* fog. This defect is probably owing to the increased density, or more impervious condition of the lens, and produces the same effect as if the sphericity of the eye itself were actually augmented. At all events, on this supposition we can account for the advantage which cataractous persons usually derive, for a time, from the use of concave glasses. As Cataract begins likewise, in by far the majority of instances, at the *centre* of the crystalline, where it is thickest, they who labour under the malady, enjoy a greater share of vision in a moderate, than

in a brilliant light, and consequently on the approach of evening, than under the full influence of the meridian sun. To the same circumstance also it is owing, that objects placed laterally, are seen better than those which are situated directly opposite to the patient.

The above phenomena may be explained upon the principle, that the pupil becomes contracted or dilated conformably to the quantity of luminous rays suffered to impinge upon the eye. When few only are admitted, the iris sympathetically expands, and allows of their passing to the retina through the yet transparent circumference of the lens: but when the stimulus of light is considerable, the area of the pupil becoming in the same ratio diminished, the opaque nucleus of the crystalline effectually resists their transmission to the bottom of the

organ of vision. On the contrary, an eye recently affected with an incomplete amaurosis (viz. paralysis of the optic nerve, or its medullary expansion) has its sensibility excited by exposure to a vivid light; and external objects, as well as those morbid appearances of ocular spectra already noticed, are rendered somewhat more perceptible.

With respect to the *external* or *visible* symptoms of Cataract, a *haziness* or *muddiness* is first discoverable in the axis of the eye, some way behind the iris, around which there is a black ring, encircling the more or less opake nucleus of the lens; which becomes apparent in the greatest degree at such times as the pupil is largely dilated. The appearance of this speck, or spot, sufficiently distinguishes Cataract from Gutta Serena; and its locality, from those complaints in which the obstacle preventing

vision is placed in the anterior chamber, or in the cornea. From the centre, the opacity gradually and progressively extends itself to the edge of the crystalline, the imperfection of sight going on in nearly the same proportion, until by its density every object is rendered in a greater or less degree invisible.

As the opacity increases, the fore part of the lens becomes more conspicuous, which appearance led the antients to believe, that Cataract moves forward, or actually approaches towards the pupil. This is, however, a mere delusion, the Cataract itself remaining stationary ; and the phenomenon is entirely owing to the more external superficies becoming opaque, the same object which reflects a greater light seeming to be placed nearer on that account. For which reason, the more that the light is reflected

by that spot, the less in proportion is transmitted to the retina. Hence the *gradual* decay of sight in this disease.

When the obscurity no longer increases, the cataract is said to be *mature* or *ripe*; at which period the patient is nevertheless still capable of distinguishing the light of the sun from absolute darkness, but cannot discern the colours and forms of bodies. The opacity sometimes assumes a variety of tints, from the palest azure to a milk-white colour, which diversity of appearance has been usually characterized by corresponding significant names, as the yellow, brown, argenteal Cataract, &c. the marks of which however, are by no means sufficiently constant to be depended upon as true criteria of the state and consistence of the diseased lens. In some few instances, so inconsider-

able is the shade presented by the cataract, and so nearly does it resemble the natural aspect of the pupil, that the greatest experience, observation, and scientific knowledge are indispensable, for the accurate discrimination of that form of the disease.

In the course of my practice, opportunities have occurred of witnessing the mistakes that have been committed by practitioners, who, less accustomed to these investigations, and not understanding the essential character of the disorder, have actually denied its existence in cases where I have subsequently operated, and restored the blessings of sight. It demands indeed a more intimate acquaintance with the various and oftentimes complicated derangements of the eye than is generally apprehended, to be able, under all circumstances, to recognize and distinguish Cataract from ailments

nearly analogous in their most prominent features, and from those extravasations of lymph, that are occasionally formed between the deep-seated lamellæ of the cornea. The following instance is so strong an exemplification of the above remarks, and of the difficulty and necessity of most scrupulously investigating the specific nature of the complaint, before we prematurely decide upon an operation, that I feel impelled, by a sense of duty, to state the particulars in this place.

Mrs. Amelia Naylor, aged Fifty, White Cross Street, St. Luke's, applied for my assistance on the 3d of September, 1812. She informed me, that three years before she had been attacked by a severe catarrhal, attended with an obstinately painful affection of the right side of her face, which eventually terminated in an acute inflammation of the

conjunctiva, first of the right, and subsequently of the left eye. The chronic stage of this latter disease existed in a slight degree at the time she came to consult me. The sight had suffered so much from the long-continued and unrestrained violence of the early symptoms, that on my first seeing her, she laboured under a defect of vision equal and very similar to what is experienced by patients who have an actual opacity of the crystalline humour. Like them too she complained of a thick mist or cloud being, according to her own apprehension, spread before every object at which she attempted to look. This symptom, coupled with the turbid appearance of the pupil, rendered the case so truly equivocal, that an experienced oculist, who was appealed to on the occasion, had assured her in the most unqualified manner, that a Cataract was completely

formed in the right, and another was commencing in the left eye, and consequently that their removal, by a surgical process, afforded the only efficient means of administering relief.

Greatly alarmed at the very unexpected intelligence, she eagerly embraced a recommendation to avail herself of the judgment of the Medical Directors of the London Infirmary for curing Diseases of the Eye, the physician of which establishment, under whose care she fell, with a view to obtain a more perfect insight into the real character of the complaint, directed belladonna to be introduced under the palpebræ upon the anterior surface of the cornea.—From this mode of employing a very proper application the most excruciating agony ensued, the painful effects of which continued during the two succeeding days. The dilat-

tation of the pupil having been accomplished, the eyes were again examined, after which the patient was dismissed, with directions to repeat her visit at the end of two months, when, she was told, something would be done for her; the physician distinctly declaring, that a Cataract was formed in both eyes.

Anticipating an operation with the utmost horror, she communicated the distressed state of her mind to a gentleman of singular humanity and benevolence, who, to uphold her spirits, suggested the possibility, rather than believed in the probability, of her case having been misunderstood. Under this impression, he referred her for my opinion. The result of a very minute inquiry into the history and symptoms of her complaint inclined me to suspect, that the disease was not Cataract, but was solely produced by an interstitial deposit of coagulable

lymph between the more internal layers of the cornea; the common consequence of preceding acute ophthalmia. Believing likewise that the extravasated lymph had not become organized, I entertained but little doubt of being able to effect its complete absorption; in which event, on the supposition that the lens remained in a healthful condition, her sight would probably be restored.

Influenced by the above considerations, I allowed myself to hope for eventual success through the agency of proper medical treatment only, aided by a strict attention to dietetical regimen. With this view, she was directed to lose some blood by an adequate number of leeches placed upon the palpebrae; to take a full dose of calomel at bed-time, and a cathartic powder next morning, which were prescribed to be repeated twice

a week ; to keep the parts constantly moistened during the day with a sedative collyrium ; and at bed-time, after having freely fomented them with a warm decoction of poppy heads, and anointed the edges of the tarsi with a mercurial liniment, to cover the eyes with pledgets thickly, spread with a cataplasm of Goulard's extract and cream.

By the above remedies, the chronic inflammation very rapidly subsided, when drops of tinct : opii vinos : c. hydrag : submuriat : were ordered to be instilled into the eyes night and morning, a stimulant astringent lotion to be used three or four times a day, and some opening pills, consisting of hydr. submuri. antim. tartar : and extr. colo-cynth. comp. occasionally, her bowels being constitutionally torpid. From the assiduous prosecution of the foregoing plan, she soon became sensible of a manifest improvement

in her sight; and within the space of six weeks, the transparency of the cornea was so completely regained, the other parts of the organ essential to vision being, as I surmised, in a perfect state, that she could and still does distinguish, by the naked eyes, the minutest objects with the greatest ease and accuracy. Had the patient submitted to the operation, as was recommended, it is not improbable, that even this degree of violence done to the organ already inflamed, might have produced the most serious mischief.

There is another disease described by Mr. Hey, in his valuable *Surgical Observations*, which is often confounded with Cataract, and concerning which I cannot do better than transcribe his own words: “In some persons that part of the eye which is seen through

the pupil, does not appear black as usual, but has a grey appearance, or as if of a dark pearl colour. This is so like the appearance of an incipient Cataract, that if the sight of the person is diminished, a surgeon may be induced to form a wrong prognostic. The appearance which I now describe, occurs in one species of Amaurosis, to persons advanced in age, or middle-aged, who have defective sight. In examining attentively the Eyes of such, one may observe that the part which puts on a greyish cast, is situated at a greater distance behind the pupil than an incipient Cataract, and that it has a more shining and polished appearance."*

Cases, of the description just alluded to, have been brought to me, in order that the patients might undergo the operation for

* Hey's Surgical Observations, p. 49.

what were esteemed instances of true Cata-ract ; and the utmost surprize, accompanied with no small share of incredulity, has been expressed by the medical attendants, at my assuring the latter of their mistake, which they admitted with reluctance, until I ex-plained the real nature of the ailment. From these and similar facts, is it not pro-bable, that couching or extraction, has been occasionally resorted to in these cases, and the credit of the operation injured ?

I must beg however to apprise the Reader, that a very similar appearance to that pointed out by Mr. Hey, is by no means unfrequent amongst individuals advanced in life, unassociated with any preternatural de-cay of the visual powers ; owing probably to a deficient secretion of the pigmentum ni-grum. The knowledge of this fact may prove serviceable, in preventing the inexpe-

rienced from pronouncing an erroneous and hasty opinion, deduced from the mere inspection of the Eye, which sometimes presents an aspect highly equivocal and fallacious.

I may add further, that an opacity of the *posterior lamella* of the capsule of the lens is sometimes identified with the symptoms just enumerated, and as such, judged unfit for an operation which, if skilfully executed, would have contributed to the perfect restoration of sight. During the last few months, I have indeed successfully operated upon two persons, a lady and a gentleman, both upwards of 50 years of age, who laboured under that species of Cataract, and who had been previously assured that their impaired vision depended upon a morbid insensibility of the retina, and consequently, that the introduction of the needle into the eye,

could not be productive of any essential benefit.

There is one species, fortunately very rare, denominated by Baron de Wenzel *black Cataract*, accurately to distinguish which from some other disorders of the Eye, requires a more than ordinary share of experience. Mr Pott refers to it, when he says, “ sometimes the whole crystalline is dissolved into a fluid, still preserving its transparency ; which kind of alteration forms what is by some called one species of *Gutta Serena*, by others *black Cataract*.”* Nothing less than the high character of Mr. Pott, and his extensive opportunities of observation, would have satisfied me, that he had actually met with such a solution of the lens. It is certainly however not constant in the *black Cataract* ; in which case, the crystalline ge-

* Pott’s Remarks on Cataract, Note, p. 7.

nerally possesses a considerable degree of firmness. Baron de Wenzel goes so far as to assert, that in a case of this sort he extracted “ the lens, which was found almost black, firm, and of the consistence of plaster ; and that before the operation, the pupils had *no motion*, and the crystallines appeared so black, that both the celebrated Van Swieten* and De Haen imagined his disorder to be Gutta Serena.”† He says, “ that it is not easy to distinguish a black Cataract from a Gutta Serena ;” but that “ though the difference in the appearance of the Eye in those two disorders be small, it may be distinguished by a careful observer ;

* See Morgagni de Causis et Sedibus Morborum. Epist. 13, p. 207, vol. i. where we find the term *black* Cataract applied, as it commonly was by the Germans, to a palsy of the optic nerve.

† Translation of Baron de Wenzel’s Treatise on the Cataract, Case 3, p. 51 and 52.

since the diseased crystalline has always a peculiar appearance, unlike to that of the bottom of the Eye.”* Mr. Ware, in a note to the Translation of the Baron’s Treatise, p. 52, observes, “ though it cannot be denied, that a Cataract sometimes exists in an Eye whose colour is dark, yet this darkness is very different from the clear black appearance which the pupil has, not only when the Eye is in a state of health, but also when it is affected with a true simple Gutta Serena.”

As this is unquestionably a point of the greatest importance, I shall subjoin a few other particulars, by which I think its character may be better understood.

The condition of the Eye, which seems to have given rise to the appellation *black*

* Translation of Baron de Wenzel’s Treatise on the Cataract, Case 6th, p. 58.

Cataract, is as follows. There are changes in the crystalline, by which the transmission of light is so little obstructed, that the pigmentum may be discerned through it ; yet, the rays emanating from external objects, and striking upon the cornea, are so irregularly refracted in their passage through the altered structure of the lens, as to represent a very indistinct picture upon the retina. The disease is characterized by a dark bluish or slate colour in the centre of the lens, somewhat resembling wrought unpolished iron, the circumference retaining more transparency. In these instances, there is still a degree of *oblique* vision, except when the patient is exposed to a strong glare of light ; in which state, from the contraction of the iris, the rays can only pass through the thickest portion of the crystalline. This description of Cataract can only be recognized by the above

symptoms, by the slightly turbid appearance in the centre of the Eye, and the generally inactive state of the Iris, but most of all, by the images of external objects not being reflected, as in the sound organ, although to the inexperienced the structure may seem perfect, from the pupil still retaining a dark complexion. This kind of Cataract is too often confounded with impaired sensibility of the optic nerve, or retina, constituting **Gutta Serena**; and the miserable sufferer is consigned to darkness for life, under an erroneous idea that the operation could be of no avail. But this is so far from the truth, that I do not hesitate to recommend the operation in all cases of the above description, where the features of the person who examines the Eye are not reflected. Let the following Case serve as an illustration,

A lady, upwards of fifty, applied for my assistance, on account of a great defect in her sight. She had, for ten years, consulted Oculists of considerable and deserved celebrity, who, fully impressed with the belief that the symptoms depended upon some paralysis of the optic nerve, contented themselves with prescribing such medicines as they conceived were best adapted to increase its sensibility. On a careful examination of the Eyes, I found reason to suspect that the case was an instance of what has been called *black Cataract*, and encouraged the hope of restoration to sight by an operation. As this was the first time she had heard her complaint called Cataract, she complied with my proposal as a forlorn hope. She was, however, most agreeably disappointed, the operation proving completely effectual, and she is now capable of reading by the help of

proper glasses, the smallest print with the greatest ease and comfort.

The success of the above case has given me courage to pursue the same plan in a few other instances of a similar nature, and with the same happy result.

SECTION III.

ON THE LIABILITY OF BOTH SEXES AND
ALL AGES TO CATARACT.

CATARACT is a disease from which neither age nor sex is absolutely exempt. It has occurred in all constitutions, under all modes of living, and at all periods of life. As far, however, as I am competent to form a judgment upon this point from the many cases that have fallen under my own observation, I am inclined to believe, that men are upon the whole, more subject to it than females; owing probably to the peculiarity of their habits and pursuits, exposing them, in a greater degree, to the influence of exciting causes. Although it most frequently attacks persons who have passed their meridian, I cannot acquiesce in the following

representation of Boerhaave, as to its almost universal prevalence amongst aged persons : “ *Homines raro,*” says he, “ *ad ultimam perveniunt senectutem, quin in uno vel altero oculo, parvâ vel magnâ Cataractâ laborant.*”* In this calculation, those anomalous appearances of the eye already pointed out, as bearing an imposing resemblance to the disease in question, have, we may fairly presume, been included as instances of true Cataract.

The complaint is not an unusual attendant upon younger subjects ; even infants are sometimes affected with this kind of blindness. Among several others, I have met with an interesting case of the latter description in Mr. Newberry’s son, Upper Maryle-bone Street, only three years of age, upon

* Boerhaave, *De morbis oculorum.*

whom I last year operated with complete success. He suffered so little inconvenience, that from the moment the needle was withdrawn from the eye, he expressed no pain : ate his dinner ; and pursued his amusements as usual. Not a vestige of inflammation supervened ; an event which might have been expected, on account of his extremely debilitated constitution ; the physical powers being so little developed, that he is still incapable of walking alone, or distinctly articulating more than a few monosyllables. This case is the more remarkable, on account of the very sudden and rapid manner in which the disease, without any assignable cause, made its first appearance.*

* Of the rapidity with which Cataract occasionally is formed, the following quotation from Richter exhibits a remarkable instance.—“ One Case I have seen, where it was completely formed in the course

The elder sister, when four years of age, laboured under lenticular Cataract in each eye, which commenced, I was informed, soon after birth. This child I had previously operated upon in an equally favourable manner, and restored to perfect sight. Her father being instinctively impressed with an idea, that the boy would at some future period become affected in the same way, was in the constant habit of inspecting his eyes; in which he never discovered the slightest visible opacity, until Wednesday, February the 7th, from which day the

of *one night*. A forester, who had been labouring under the Gout, had his feet exposed to a great degree of cold during the night: the Gout suddenly retroceded in consequence, and he was suddenly deprived of his sight the same night. I saw him next morning, and found a complete pearly-coloured Cataract." Richter on Cataract, p. 3 and 4. Eschenbach relates in his Observ. p. 43, a similar Case.

absolute nonsense! said Kinglake on Gout.

Cataracts increased so rapidly, that by the *following Saturday*, they were *completely formed*. I did not see him till *ten* on the *succeeding Sunday*, and at *one* o'clock the *next day*, the operation, at my request, was undertaken ; the result of which has been, as above stated, the most perfect imaginable, the child being able to distinguish the very minutest objects with facility and correctness. The following statement of Richter is applicable to the present topic : “ *Tres vidi Infantes, sanis cæterùm parentibus ortos, qui sub initio tertii ætatis anni, singuli Cataractâ visum perdiderunt.* ”*

Some are born with the complaint, which is then called *congenital Cataract*, and like that in the adult, it may consist of an opacity either of the lens, the capsule,

* Richter, *Observationes Medic.*

or both. Scarpa gives a very accurate description of this species of the disease, which he denominates the *primitive membranous*, in contradistinction to the *secondary membranous*, or *capsular*, Cataract, which occasionally succeeds to the operation of couching or extraction : “ J’entends parler,” says he, “ de cette espèce particulière de Cataracte dans laquelle le crystallin devient pour ainsi dire atrophie, ou que, dissous et disparu, il ne nous laisse que la capsule opaque, ou tout au plus dans son intérieur un petit noyau pas plus gros que la tête d’une epingle. Cette espèce de Cataracte se rencontre le plus souvent dans les enfans, ou chez les personnes qui ne passent pas vingt ans. On la distingue des autres par une apparence semblable à une toile d’araignée, ou par un point blanchâtre dans le centre ou dans la circonference de tout le crystallin, lorsque

disparu, il en est à peine resté le noyau.”* In these cases the lens may be in a solid, soft, or fluid state; but as Scarpa justly remarks, in the majority of instances, the greater part, or the whole of the crystalline, after having lost its pellucidity, is absorbed by a spontaneous effort of nature during the foetal period, or gradually afterwards. In proportion to the progress of absorption, the anterior lamella of the capsule retreats upon the posterior, until the two fall into contact, when they coalesce, and form a more or less dense, opaque, and elastic membrane, constituting the *primitive capsular* Cataract. This change from the lenticular to the capsular species having been accomplished, the process of absorption is from that time altogether suspended, until

* Scarpa, *Traité des Maladies des Yeux*, traduit de l’Italien, par Leveillé.

the organization of the condensed capsule is destroyed, by being detached from the surrounding living parts, and broken into small fragments. If suffered to remain undisturbed, it generally acquires an increased degree of firmness and tenacity ; a fact that strongly inculcates the advantage and expediency of an early operation.

For the accurate practical developement of most of the phenomena of *congenital* Cataract, and for the happy adaptation of a successful operation to the condition of childhood, we are particularly indebted to the genius and industry of the late Mr. Saunders. The mention of his name on a topic with which it must ever be most honourably associated, affords me an opportunity that I am proud to embrace, of rescuing his posthumous fame from the imputation of illiberality, on account of his

having withheld, during his life-time, the publication of his method of curing that species of disease. An intimate acquaintance with his undisguised sentiments, and a most friendly and unreserved correspondence with him on this interesting subject, enables me to explain the reason of his silence. A series of ill-health, and “the hope,” as he expresses himself, “of rendering it more worthy of acceptance, and not a mercenary motive, as some have malignantly observed, or the intention of boasting a secret,”* were the true causes which prevented his redeeming the pledge that he had so long given, of communicating the particulars in a Treatise. And I most willingly avail myself of the present occasion, grate-

* See Mr. Saunders's Letter in the 4th Annual Report of the London Infirmary for Curing Diseases of the Eye.

fully to acknowledge my obligations, for the valuable accession of practical knowledge which I obtained from his private and public instructions, relative to the nature and scientific treatment of Diseases of the *Eye* and *Ear*, while under his immediate tuition at the Institution which he had the honour to establish.

SECTION IV.

ON THE PROXIMATE CAUSE OF
CATARACT.

SATISFACTORILY to develope the proximate cause of Cataract, or of any other Disease, under the most favourable circumstances, is by no means an easy task. Of the mode in which Cataract is formed, even when it occurs in the adult subject, where its rise and whole progress can be watched, we are often forced to confess our ignorance. How much greater must be our difficulties in the congenital species, which commences before the Eyes have been exposed to light, or to any offending cause with which we are acquainted.

When we consider that the lens is rendered turbid and hard by maceration in

acids, the hypothesis of Maître-Jan,* which attributes its opacity to an acid serosity was, at the time he wrote, if not plausible, at least allowable. But the supposition that this newly-generated acid first softens, and afterwards destroys the capsule, and that it then acts upon, and gradually penetrates into the interior texture of the crystalline, is unquestionably erroneous. Experience has taught us, that the *centre* of the lens is *primarily* affected; and that in all cases of Cataract, the capsule, whether opaque or otherwise, never ceases to remain entire.

It was the opinion of St. Ives,† that in old age, an obstruction or obliteration of the extremely fine nutritious vessels of the capsule, or crystalline, became the proximate cause of Cataract. The same author

* Maître-Jan, *Traité des Maladies de l'Œil*, p. 136.

† St. Ives, *Traité des Maladies des Yeux*, cap. 17.

ascribed the dissolution of the lens to a stagnation of fluid within its investing membrane, which he conceived grew acrid by fermentation, and ultimately inspissated. This doctrine was adopted by Maître-Jan, and gave birth to the opinion, that the maturity of Cataract is indispensably necessary to its successful depression.

In conformity with that theory of our ancestors, a *recent* Cataract was esteemed *soft* or *unripe*, and one of *long standing*, *hard* or *ripe*, from a fallacious belief, that every Cataract passes through certain regular stages before it arrives at *maturity*; a term designed to express the hardness or solidity of the Cataract. These ideas respecting the ripeness or unripeness of Cataract, have now been repeatedly ascertained to be without any foundation. I have operated upon *old* Cataracts, some of which, so far

from possessing a proportionate degree of firmness, were *soft*, whilst others were actually *fluid*; and upon *recent* ones which, instead of being soft, or in a state of solution, were of a very *firm* texture. So that nothing can be deduced from the age or duration of a Cataract, in regard to its probable consistence.

Inflammation is now well known to be a process which deprives transparent parts of their pellucidity, at the same time that it increases their thickness, by the interstitial deposit of coagulable lymph.* This is clearly seen in corneal Ophthalmia; and in this manner we may sometimes explain the origin of Cataract. But the complaint occasionally arises without any symptoms, indi-

* Hunter, on the Blood, page 277.

cative of inflammatory action, either in the deep-seated or superficial parts of the eye.

The *chronic* inflammation in sanguiferous parts, unattended with *redness* or pain, is called by Boerhaave *lymphatic* inflammation, a term that may, probably, be safely applied to *every kind* of inflammation in the *lens*; a part in which neither blood vessels nor nerves can be traced.

That this kind of inflammation not only exists, but is sufficient to produce a consolidation and opacity of the crystalline, is proved by the effect of a penetrating wound in causing Cataract; as well as by our own operation. If a semi-transparent lens is divided, we not unfrequently observe that, at the end of a short period, though the Cataract be lessened, its opacity is actually increased. Should it be necessary to repeat the operation, the relics will afford a greater

degree of resistance, than the previously entire Cataract. It is probable that what the Needle now finds a difficulty in transfixing, is principally the capsule, rendered more dense and tenacious by adhesive inflammation ; a suggestion which is confirmed by the following facts, viz : When the capsule is cut through by a simple incision, instead of being freely comminuted, as it ought to be, it will occasionally reunite with a very firm cicatrix. The laceration of the capsule in the operation of extraction is sometimes followed by *secondary* Cataract. What is still more to our purpose, we know that inflammation of the iris is apt to extend to, and render opaque, the anterior lamella of the capsule of the lens.

Though the above doctrine may explain the proximate cause of the firm Lenticular, and also the capsular Cataract, arising from

mechanical injury, or visible inflammation, yet it must be acknowledged, that there is great difficulty in transferring the reasoning to other species of the malady. A disease indeed which assumes so many forms, which attacks both sexes and all ages, under every circumstance and habit of life, and even the child before birth, which is often imputed to a great variety of causes, and occasionally occurs without any that we can assign, which is sometimes incredibly rapid, at other times as remarkably slow in its progress; such a disease it is fortunate that we can relieve, without the necessity of previously finding out its proximate cause.

The following Case is a striking proof how inapplicable are most, or all of the causes usually adduced, to account for the origin of the complaint.

A gentleman of the highest respecta-

bility, in Upper Wimpole Street, on whose *left* Eye I have just operated with the most perfect success, assures me, that he experienced the *instant* failure of his sight whilst walking in Bond Street, during a very cold easterly wind, last February. The right eye was long before so exceedingly imperfect, by an opacity in the eentre of the cornea, that he must have been conseious of the slightest defect in the other, had any previously existed. He deseribes his *left* eye as suddenly struck with a picreing blast of wind from one of the cross streets, whieh produeud an aeute momentary pain, great defluxion of tears, and instantaneous blindness. Fortunately not being alone, he requested his friend Admiral N. to conduet him immediately to Cork Street, for the purpose of consulting Mr. Phipps, who felt no hesitation in distinctly avowing, that a Cataract was actually formed !

I am not ignorant that Cases are related by others, and similar ones have also occurred to my own observation, of patients who were not aware that they laboured under the complaint, until some circumstance has incidentally caused them to shut the *sound* Eye, when they were not less surprised than alarmed at finding themselves nearly in a state of darkness. But the instance just related is free from ambiguity, and fully warrants us in the conclusion, that the Cataract must have been formed almost instantaneously. This sudden production of the disease has not been overlooked by other writers of credit. Mr. Pott observes, "that a Cataract may be formed *instantaneously*, by *external violence*;" and adds, "that he had seen it four different times."*

* Pott, Remarks on Cataract. Note, p. 25.

Similar cases have fallen under my own notice; the history of one of which is fully detailed in a subsequent part of this Treatise. I have only, however, met with one other decided instance of this description, in which the disease has arisen so *suddenly, without mechanical injury.* The case alluded to is that of a gentleman upwards of sixty years of age, on whom I have lately operated for soft lenticular Cataract. Whilst riding in Hyde Park a few months since, exposed to a very cold and boisterous wind, a severe though transient pain, attended with a copious suffusion of tears, was followed by the immediate formation of Cataract, and loss of sight, a sense which he had, until that moment, enjoyed in the greatest perfection.

SECTION V.

ON THE EXCITING CAUSES OF CATARACT.

CATARACT may with propriety be considered, in conformity with the celebrated Richter,* as a *local* or *constitutional*, an *external* or *internal* malady ; agreeably to what has been long since stated in general terms by Celsus. “ *Igitur vel ex morbo, vel ex ietu conerescit humor.* ”† It is esteemed purely *local*, when it occurs to persons otherwise healthy, in consequence of blows, wounds, sudden exposure to excessive heats, or colds, or any other injurious cause.

When it is the result of mechanical violence inflicted upon *one Eye* only, the other

* Richter, on Cataract. p. 1 and 2.

† Celsus de Medicin. Lib. vii. cap. 7, sect. 14, de Suffusione.

seldom becomes consequentially affected, unless severe symptoms of irritation should supervene, which may be sympathetically propagated to the sound organ. Punctured or lacerated wounds of the capsule of the crystalline produce Cataract, and sometimes its cure; an instance of which is given hereafter. It ought however to be remarked, that the opacity of the crystalline occasioned by external violence, is rarely a simple complaint, other parts of the Eye frequently participating in the mischief. Hence the removal of this species of Cataract is not always followed by the restoration of sight.

The disease is generally reckoned *constitutional* or *internal*, when it comes on spontaneously without any obvious or assignable topical cause. In these instances, if it happen to be connected with a vitiated habit of body, whether scrofulous, scorbutic, vene-

real or gouty, authors have imagined that, under such coincidences, it owed its origin to that state of the constitution ; a supposition which, however plausible, is by no means confirmed. The opinion indeed may seem to be in some measure countenanced, when *both* Eyes become at the same time, or in succession, cataractous.

Richter has asserted, that in these cases the operation often eventually fails. "A man," says he, "who had been much troubled with gout, and a lady of a scorbutic habit, had their sight restored by the operation for Cataract. Some months after, the pupils of their eyes gradually contracted themselves, and at last closing altogether, a *second blindness* ensued."* But surely the loss of sight which succeeded to the opera-

* Richter, on Cataract, p. 2.

tion in the instances just quoted, ought not in justice to be ascribed to any morbid diathesis in the constitution of the respective individuals. Obliteration of the pupil can only take place in consequence either of inflammation of the Iris, or protrusion of a portion of that membrane through an aperture in the cornea. Such an event does, it must be confessed, occasionally result from Extraction, however skilfully performed, and which constitutes one of the principal objections against that mode of cure. As far as my own experience on this point enables me to offer an opinion, I can with confidence affirm, that hitherto not a single instance of failure has occurred in my practice, although I have operated upon persons evidently labouring under scrofulous, gouty, and, what are called, scorbutic symptoms.

Syphilis has been enumerated amongst

the *constitutional* causes of Cataract ; if such a cause does exist, it can only be when the disease exhibits itself under acute *internal* inflammation of the Eye. In no instance of this description have I yet had an opportunity of satisfying myself that the lens is thereby affected ; but many times have observed an obscurity behind the pupil, accompanied with great defect of sight.. These symptoms seem to be owing to a deposit of coagulable lymph upon the capsule, or more probably to an opacity and thickened condition of its anterior convexity, the effect of continuous inflammation of the Iris ; an inflammation which may arise from various other causes. This state of the parts generally yields to a well directed course of mercury ; whether by producing absorption of the effused lymph, or by altering the *specific* action, I shall not take upon me to

determine. Maître-Jan probably refers to the more stubborn cases in the following passage : “ Des autorités assez graves, m’avoient fait croire autrefois que les Cataractes dependantes d’un vice vénérien, pouvoient ceder à l’usage du mercure ; mais, des observations multiplées, que j’ai en lieu de faire depuis, m’ont absolument detrompé, et m’ont convaincu qu’elles étoient aussi rebelles à toutes especes de remèdes que les autres.”*

Under the head of *constitutional* causes may properly be classed, what has been denominated, *hereditary* Cataract ; instances of which occur in successive generations in the same family. Richter says, “ I have extracted the Cataract from a man, whose father and grandfather were both blind from

* Maître-Jan, *Traité des Malad. de l’Œil*, artic. de la Cataracte.

that complaint, and whose son has already an incipient one. Maître-Jan* and Janin† have both seen similar cases. "I myself," adds he, "have seen three children, all born of the same parents, and who all acquired Cataracts at the age of three years."‡ Morgagni also mentions the following examples: "Tres intelliges, cum essent sorores, omnes Cataractæ, cui nemo trium inclitorum fratum, obnoxias fuisse. Sic alias scribam, unâ ex matre surdas natas fœminas omnes, mares nullos."§ In my own practice I have been successful in two cases of Cataract in the same family. In December 1810, I repeated the operation on a child *eighteen months* old, the son of Mr. B—, of

* Maître-Jan, *Traité des Malad. de l'Œil*, p. 176.

† Janin, *Observationes sur l'Œil*, p. 149.

‡ Richter, on Cataract, p. 3.

§ Morgagni, *Epistol. 13, artic. 18.*

Bucks, with a view to complete a cure which, owing to the premature death of my lamented Preceptor, had been only partially accomplished. Another of Mr. B's children had been afflicted with congenital Cataracts, and was operated on by the late Mr. Saunders.

I have also recently succeeded in restoring to sight by a single operation, and with the slightest possible pain, or subsequent inconvenience, the sister of Hannah Chapel, whose case is particularly described hereafter. This young woman, who is upwards of twenty years of age, did not perceive any defect in her eyes until last Christmas, when they became impaired, without any cause, which she could assign. After that period the Cataracts, which were of the soft lenticular kind with transparent capsules, advanced so rapidly, as in the space of lit-

tle more than nine months to be in a proper state for my mode of operating. What is remarkable, *another sister* of the same family, who is about twenty-five years of age, has begun to experience threatening symptoms of incipient Cataraet. The immediate ancestors of these females were not affected with Cataracts, nor are any of the offspring of my patients, *at present*, attacked by the disease. In short, too many examples of this description exist, and are to be found in different writers, to require any further elucidation.

SECTION VI.

ON THE SEVERAL MODES OF TREATING
CATARACT, ANCIENT AND MODERN.

DIFFERENT methods have been recommended for the purpose of relieving, or curing the blindness occasioned by a greater or less degree of opacity of the crystalline, or its capsule. These may be considered as dioptrical or mechanical, medical or chirurgical. The *dioptric* aid, *before* the operation, consists of concave glasses, in general but of *temporary* use, on account of the increasing opacity, although they may be strongly indicated by the myopy, or short-sightedness, with which it is usually combined. *After* the removal of the Cataract, spectacles of a different description are required, namely,

such as are furnished with convex or double convex lenses, of proper focal lengths.

The *medical* means, are remedies internally exhibited, or externally applied, with the view of effecting the absorption, or, as it was called, dissipation of the Cataract. A great deal has been written on the subject by several ancient* and modern authors, of considerable professional eminence, in re-

* “ *Suffusio cum recens incidit, medicamentis quoque sœpè disentitur.*” Celsus de Medicin. L. 7. c. 7. sect. 13. See also Fabric. ab Aquapend. Oper. Chir. cap. de Suffusione. Boerhaave, de Morbis Oeulor. p. 119 and 120, Paris, 1748. Stoll, Ratio Medendi, tom. 3, 8vo. Vind. 1787. Hovius, in his Traet. de Cireular. Humor. in Oculo Motu, p. 122, intimates, that he knew and practised a peculiar and effectual method of curing Cataract, of whatever species or duration, without pain or danger; but of the means by which such unparalleled success was obtained, we are not informed. The candid Heister indeed, after much enquiry on the subject, regards the whole story as a vain empty boast.

commendation of certain remedies, believed capable of exerting a specific influence over the disease to the extent of curing, not only the *recent* affection, but also when it is further advanced, and even in its state of maturity. Among the variety of remedies employed for that purpose, some are wholly destitute of any active medicinal properties. Others again are as certainly possessed of real and tried energy in several morbid derangements of the system; and consequently, may not be absolutely ineffectual in the complaint under consideration.

By the topical application of powerful stimulants, such as electricity, galvanism, æther, infusion of capsicum, solutions of hydrarg. muriat. or natron muriat. in mist. camphor. aided by alterative doses of mercurials, occasional emetics, artificial ulcers,

and various sternutatories, I have felt impressed with the belief, that the *incipient* disease has been at least suspended, and sometimes even essentially relieved. In a few of these instances the patients have not hesitated to confirm my suspicions, by assuring me that they were conscious of a perceptible improvement in their sight ; of which indeed they have given me very decisive proofs.

A Case of this description some months since fell under my care. The gentleman, who is a Midshipman, laboured under the most unequivocal symptoms of *incipient* Cataract. By perseverance in alterative doses of mercurials, with local stimuli, he so perfectly regained his sight, as to be in a condition to rejoin his ship, which he had left, at the suggestion of his Captain, for the express purpose of trying whether the de-

fective vision could be sufficiently relieved, to enable him to discharge the duties of his situation; to which he had found himself altogether unequal.

It must not be concealed however, that our judgment may, on such occasions, be misled. Independently of the difficulty, under all circumstances, of ascertaining when the incipient disease actually does exist, its progress is often most uncertain and precarious; at one time it advances with rapidity, while at other periods it proceeds with equally tardy steps, and at intervals remains apparently stationary.

Heister observes, "that there are not *many* instances of recovery from a Cataract, where it has been left to Nature only."* There are however some cases of this kind.

* Heister's Surgery, part 2, page 402.

St. Ives saw two such ; one in a man, the other in a dog: And the late Mr. Wathen assured himself, " that two Cataracts in the same person, after continuing eighteen years, entirely dispersed of themselves ; and the patient saw perfectly during the remainder of his life, which was not less than seven years."* I have heard of similar instances, but cannot vouch for their truth from my own personal knowledge, although I have no just grounds for doubting their reality.

It will be satisfactorily shown, from the facts adduced in the subsequent part of this Work, that the process of absorption may be greatly accelerated by appropriate remedies, when the anterior portion of the capsule of the lens is ruptured. This state of the com-

* Wathen's Dissertation on the Cataract, p. 30.

plaint has been a pregnant source of deception in estimating the effects of medicines in the cure of Cataract originating from *mechanical injuries.** Yet, as in the *congenital* species, wherein only a portion of the opaque lens remains, Nature has succeeded in removing the greater part; and as the lenticular disease in the adult has sometimes disappeared spontaneously, without any certainty of the previous breach in its tunic; it argues, in my opinion, an unjustifiable degree of incredulity to deny the possibility of restoration to sight by any other means than an operation. Admitting even, for the sake of argument, that we are not, *at present*, in the possession of any system of medical treatment adequate to the certain attain-

* The instances published by Mr. Ware, of the recovery of sight by the dissipation of the Cataract, are of this description.

ment of so happy a result, does it necessarily follow that we must be for ever precluded from acquiring that degree of practical knowledge? Had such a mode of reasoning with respect to other maladies been generally recognized, many complaints now under our controul, would still have been ranked among the *opprobria medicorum*.

From the foregoing considerations we are, I apprehend, fully warranted in instituting further trials on this interesting point, and especially upon those persons whose fears make them recoil at the idea of a surgical instrument. For, if the measures adopted should be unproductive of eventual benefit, they may at least tend to prepare and reconcile the minds of the timid to an operation which, they are at length convinced, is rendered indispensable, by the complete failure of all preceding efforts.

Nothing that is here suggested will, I hope, be construed into a proposal to temporize with the disease at any time, and especially in its *advanced stage*; for if the *early* symptoms are not always of a tractable nature, those which are more confirmed cannot be expected to yield. When, therefore, the lens, or its capsule, is become so visibly opaque, as materially to impair the functions of the organ, *chirurgical* assistance should be resorted to without further hesitation or delay; unless contraindicated by some local or constitutional impediment.

Previously, however, to his engaging in an operation, the Practitioner ought conscientiously to reflect whether, with a thorough knowledge of its principles and practice, and of the anatomical structure of the organ affected, he has a steady hand, a quick

sight, great presence of mind, and full confidence in himself. For he should consider, that the probable recovery, or the irreparable loss of sight, confessedly the most valuable and useful of all our senses, will depend upon his possessing these indispensably requisite endowments. That conduct, therefore, must be inexcusable, which prompts any one, for the mere gratification of his professional vanity, or for private interest, rashly to undertake an operation, by the failure of which, the patient may be irrecoverably deprived of an organ, at once, of primary importance in all the concerns of life, and one of the principal sources of intellectual and pleasurable enjoyments.

Furnished, however, with the necessary preliminary attainments, and with a hand ready to execute the instructions of his well informed mind, acquainted also with the

history, the phenomena, and the peculiar species of the disease, with its simple or complicated form, and with its fitness for the proposed method of relief, the Surgeon, thus qualified, may perform the operation without fear or misgivings, and under favorable circumstances, be justified in anticipating a happy result.

Until of late years, the radical cure of Cataract has been attempted only by Couching or Extraction. The former of these surgical processes is of very great antiquity. Celsus, the celebrated Roman Physician, who lived at, or about the commencement of the Christian æra, describes, and is generally esteemed the inventor of the operation. It consists in removing the opaque lens, which forms the Cataract, from its situation in the axis of the eye, into the vitreous humour, below the inferior margin of the pu-

pil, by which the rays of light are again admitted to the retina, and the patient is restored to sight. The operation is performed by a slender instrument, from its general form, usually denominated a needle.

When we reflect on the ignorance of our ancestors, concerning the exact seat and true nature of Cataraet, the relative situation of the parts which should be particularly avoided in the operation, the place at which the puncture can be made with the greatest safety; and, lastly, the direction which the Instrument ought to take, when introduced into the Eye, added to its ill-constructed form, and their rude mode of using it; we must cease to wonder, that an operation, thus circumstanced, should prove highly hazardous and painful, and only incidentally successful. Even that eminent Surgeon and Anatomist, Fabricius ab Aqu-

pendenté, who flourished in the 17th century, speaks with great despondency of the operation of Couching. The following are his words.

“ Primum igitur vidi Chirurgos hujus-
“ modi operationem privatim profitentes,
“ quos merito ocularios appellamus, inter-
“ dum bene et felieiter operatos fuisse, sæ-
“ penumero etiam infeliciter, quia interdum
“ ab ipsis uvea tuniea nimium diducebatur,
“ interdum rumpebatur, ex quo vel admo-
“ dum amplificatum, vel distortum etiam
“ pupillæ foramen redditum est, eum visûs
“ læsione; interdum sub operatione, oculus
“ universus intus conturbatur cum cæcitate
“ ejusdem oeuli. Non raro succedebant
“ postea magnæ inflammations similiter
“ eum ipsius visûs ablatione; nonnunquam
“ si nihil apparebat in oculo, tamen male
“ omnino homines videbant, neque causa

“ ulla patebat. Propter hos omnes eventus,
 “ credidi Chirurgos propositos potius casu,
 “ quam arte operari, et fortuito eventus
 “ provenire.”*

Professor Raw used to observe in his Lectures, that he regarded the operation of Couching as the most uncertain in all Surgery. Heister says, “ Though the operation is easy to be performed, the success of it is so very precarious, that amongst the great number of persons couched by the most distinguished Oculists of his day, very few met with the desired success ; and that of the vast numbers of patients upon whom the celebrated itinerant Taylor operated, *not one* in a *hundred* recovered his sight !”† He adds likewise, that “ he saw in several different places,

* Fabric. ab Aquapend. de Chirurg. Operat. p. 23.

† Heister, Med. Chir. et Anatom. Observat. p. 5 and 6.

many miserable objects in tormenting pain, arising from inflammation consequent upon the operation: and that of those who regained their vision, there was *scarcely one in ten* who did not, sooner or later, lose it again!" The above, we may presume, faithful representation of the lamentable effects of Couching, as then practised, proved the necessity of great reformation, or a total change in the process which, for many preceding ages, had been exclusively adopted in cases of Cataraet.

Aceident, that fruitful source of improvements, gave birth to the rival plan of extracting the opaque lens through an incision of the transparent cornea. The escape of the crystalline into the anterior chamber, after unsueeessful attempts at depression, and its subsequent and safe removal through a section of the cornea, encouraged M.

Mery* to recommend, in the year 1707, the practice of Extraction in all other cases of the disease. However, as it does not appear that he ever performed the operation which he ingeniously suggested, nothing further I believe was made known on the subject, until the hint was reduced to practice, and the whole particulars of the process published by M. Daviel,† a celebrated Surgeon of Paris, in the year 1745.

We cannot wonder at the eagerness with which this *new* operation was embraced, when we reflect upon the ill success of Couching, as it had been previously perform-

* *Mémoir. de l'Acad. Royal des Scien.* 1707. p. 500.

† *Une nouvelle Méthode de guérir la Cataracte par l'Extraction du crystallin,* par M. Daviel. *Mémoir. de l'Acad. Royal de Chirurg.* p. 337. Plat. 19 and 20.

ed. Novelty, and the apparently eradicatorive nature of the operation, attracted and biassed in its favour some of the most expert Surgeons of the age. Their great skill and superior anatomical knowledge gave them courage to venture upon so bold an experiment, and enabled them to surmount many of its difficulties, and to secure it a portion of success, confessedly greater than what had attended the then defective mode of performing the other operation. Hence Couching declined in credit and reputation, in proportion as the fair and prosperous events of Extraction were most industriously proclaimed and exaggerated, whilst its manifold failures and unhappy consequences were as studiously concealed.

Although the simplified and greatly improved process of Extraction is still held in the highest estimation by several eminent

Surgeons and Oculists, the united talents of Callisen, Pott, Scarpa, Lucas, Hey, Latta, and others, have by their joint labours and suggestions, contributed so essentially to obviate the imperfections, and to improve the practice of Depression, that the balance of modern authorities has turned upon the whole, in recommendation of the Needle, in preference to the Knife.

It is not intended in the present Work, to contrast and canvass the merits, or advantages and disadvantages, of the two operations; a task that has been already very ably fulfilled by several distinguished authors, who have written expressly on the subject. Each method has to boast among its advocates, practitioners of the highest celebrity, who all admit that *both* are liable, like all other important operations, to occasional inconveniences and disappointments.

The objections urged against Couching, notwithstanding its recent improvements, are, its uncertain and precarious result, added to the injury always done to the vitreous humour, occasionally to the iris, and sometimes also to the retina. The objections to Extraction are at least equally pointed. Besides the difficulty of performing it, we have to apprehend that sight may, even after the most complete extraction of the lens, be afterwards greatly impaired, or wholly lost, by an opacity of the cornea, by *secondary* Cataract, or by an obliteration of the pupil. To the above may be added, its inapplicability to certain forms of the disease, and the impossibility of restoring parts which may have been injured by the operation. Lastly, it is admitted, that neither Couching nor Extraction can with safety be attempted in *early* infancy.

Both these modes of operating for Cataract being thus defective in several important particulars, a less exceptionable process became a desideratum in Surgery. The one I am about to detail will, it is presumed, be regarded as fairly entitled to that character; for it bespeaks our approbation, not only by its universal applicability to all descriptions of Cataract, and by its greater facility of execution and more general success, but most of all, by its coincidence with the restorative efforts of Nature. To *infancy* the operation is particularly valuable, not merely for the above reasons, and from the shorter space of a short life which is consequently passed in comparative darkness, but because, as happens to all our other perceptive faculties, the long and early *inaction* of the organ, renders us, for a considerable period, less acquainted with its pow-

ers, and with the means of multiplying its uses.

The object of every operation for the *radical* cure of Cataract must be ultimately the same, viz. the *permanent removal of the opaque substance from the axis of vision*. And that mode of operating is undoubtedly the most eligible, which can be accomplished with the greatest facility, with the smallest degree of present pain and subsequent danger, and which is adapted to the different species of the disease; thus combining every attainable benefit with the fewest avoidable inconveniences.

All these advantages seem united in the last improved method of operating, which we shall hereafter describe, and which we owe to a more enlarged and philosophical view of the resources of Nature, and principally in regard to the doctrine of Absorption in the

human body. That the Antients had indeed a confused idea of the solution of Cataract in the aqueous humour, long before the discovery of the Absorbent System, may be inferred from the following passage in Celsus: “*Si subinde credit,*” says he, “*eadem acu magis concidenda, et in plures partes dissipanda est.*”* This direction to reduce the opaque lens into small fragments, was doubtless founded upon his having experimentally ascertained that such a comminution accelerated the recovery of sight, although he could not possibly be aware of the means by which it was attained.

The absorption of fluid and soft Cataracts, after unavailing efforts to couch them, was a fact so very obvious, that it did not escape the notice of our countryman Banister,†

* Celsus de Medicin. L. 7. cap. 7. Sect. 14. p. 434.

† Banister’s Treatise of the Eyes. 1622.

who published his work on the Eye in the 17th century. Sir William Read, oculist to Queen Anne, gives so candid and interesting an account of a cure unexpectedly completed by this process of nature, that I cannot refuse myself the gratification of transcribing the particulars.

Speaking of one of his operations, he says, “ At the end of nine days I visited my patient, and found both her and her friends highly discontented, because she could not see so well as she did before ; so that I met with nothing but bitter invectives, till having pacified them as well as I could, with fair words, I came again. Within a fortnight after, when art and nature having performed their mutual operations, all the cloudy vapours and rags of the Cataract were consumed and dispersed ; her eyes grew clear, her sight

“ became perfect, and so continued ever
“ after.”*

Barbette† likewise, an old Surgeon, as well as several other respectable authors,‡ have recorded similar instances. Mr. Pott, Professor Scarpa, and Mr. Hey, who wrote when the doctrine of absorption was well understood, concur in recommending the free laceration of the anterior part of the capsule of the lens in the *soft* and *fluid* species, as alone sufficient to ensure their dispersion. These eminent Surgeons, however, still avow their predilection for Depres-

* Sir W. Read's Treatise of the Eyes, p. 6. 1706.

† Chirur. Barbettiana, cap. 16. pars. i.

‡ Dedier in Consultationes, &c.

Palucci Méthode d'abattre la Cataracte, Par. 1751.

M. Hoin Lettre concernant quelques Observations sur divers especes de Cataractes. Mercur. de France, 1759.

Berryat Histoir. de l'Acad. des Sciences, 1749.

sion, whenever the solidity of the Cataract would admit of that operation.

But Mr. Saunders had the distinguished merit of reducing that knowledge to general principles of practice, and of adapting it not only to the different sorts of Cataract in the adult, but also in the earliest infancy ; a period of existence, to which the usual modes of operating are confessedly inapplicable. To Mr. Saunders I shall ever concede the honour of having suggested the operation, from which have emanated those practical improvements, the elucidation and explanation of which are the immediate objects of the ensuing pages.

Before, however, we enter on the operation itself, it will be proper to describe the requisite Instruments.

SECTION VII.

DESCRIPTION OF INSTRUMENTS.

IT was a remark of the late Mr. Hunter, that an experienced and able Surgeon will never find himself at a loss for Instruments, so long as he is furnished with a Knife and a Probe. Generally speaking, this may be true, the superior knowledge and manual dexterity of a skilful Operator, enabling him to overcome many of the difficulties arising from the inconvenient form of his mechanical apparatus. Still, however, it must be admitted, that a well-adapted Instrument, even in the hands of the most expert Surgeon, will facilitate, and contribute to the success of his undertakings. This observation applies with peculiar force to those nice operations which are occasionally

required for the very delicate organ of vision. I shall now, therefore, without further apology, detain the Reader with a minute description of those alterations in the construction of the Instruments, which I have ventured to introduce into the ophthalmic branch of the Profession.

It is scarcely necessary to advert, on the present occasion, to the various Couching Needles which have been, at different periods, invented by several ingenious Practitioners ; since none of them seem happily accommodated to the method of operating which will be presently recommended. Those of Hey and Scarpa have deservedly superseded the broad spear-pointed Needle of the antients, and the more modern round one of Baron Hilmer. But the straight Needle of Mr. Hey, being of a wedge-like form, and cutting only at its semicircular extremity, is

obviously ill calculated to penetrate the coats of the Eye; and when introduced, there is great difficulty, and some danger, in the attempt to divide a hard lens, or tenacious capsule, into sufficiently small fragments for speedy absorption: though it must at the same time be granted, that this Needle is the best that has hitherto been suggested for the removal of the opaque lens from the axis of the Eye into the vitreous humour. Similar objections may, with still greater force, be urged against the curved and inconveniently long Needle of the Italian Professor, except that, being spear-pointed, it enters the ball of the Eye with more ease than Mr. Hey's Instrument.

As Mr. Saunders aimed at curing the different species of Cataract by a method of operating varying, in many respects, from those previously adopted, he was under the necessity of contriving a Needle better suit-

ed, than either of the preceding, to fulfil his intentions. In order that the Reader may have a just conception of his Needle, I shall copy the description, and the engraving of it, from the posthumous Work of my deceased Friend, and shall afterwards subjoin an account of those deviations in the figure and use of the Instrument, the advantages of which have been confirmed by repeated experience. A front and lateral view of the smaller improved Needle of Mr. Saunders is accurately represented in the annexed Plate.* “ Its length, from the point to the extremity of the shoulder next the handle, is *one inch* and an *eighth*. From the shoulder to the centre of the blade, it is round ; from the centre to the point, it is gradually flattened on both sides, being reduced so thin near

* Vide Plate, fig. i and ii.

its extremity, as to be somewhat flexible, varying in this respect according to the state of the capsule. It has on both sides of its point very sharp edges, which extend a *little beyond* its angles. Its breadth at the angles is one-thirtieth part of an inch. From the point to the shoulder, there is a very gradual increase in the size of the Instrument."

Such is the description of Mr. Saunders's Needle, with which I was formerly in the habit of operating for Cataract. But I experienced considerable difficulty in my attempts, with that Instrument, to reduce to an adequate degree of comminution the firm *lenticular*, and still more the dense and thickened *capsular* Cataract. These difficulties led me to believe, that the same form of Instrument could not, with equal facility and effect, be applied to each description of the disease; and that the Needle,

though much improved in its construction, did not appear to possess, even in its present shape, all the perfection of which it was susceptible. It certainly penetrates the coats of the Eye, and even a hard lens, with ease. But I found that, in consequence of being blunt above the angles, it was apt to become fixed and entangled in the hard and tenacious Cataract, which instead of yielding to, accompanied the several movements of the Instrument, by adhering to its extremity. Hence, some danger was incurred of injuring the Iris, or Ciliary Processes; at the same time that little impression could be made upon the substance of the Crystalline. It was probably because Mr. Saunders had met with similar impediments, that he latterly preferred acting chiefly upon the centre of the anterior lamella of the capsule, disregarding, in a great measure, or only

gently opening, the texture of the lens, in the first operation, until it had become softened by partial solution in the aqueous humour. Although, under this cautious method of procedure, he had undoubtedly less inflammation, yet this advantage was obtained at the expence of a more tedious cure, and often the irksomeness of repeated operations. Wishing to hasten the dissipation of the Cataract by operating with greater freedom on the Crystalline and Capsule at the same time, I gave directions to Mr. Ewing of Drury Lane, upwards of two years since, to construct the following for that purpose.

The blade of my Needle* is only 11 lines in *length*, allowing 12 to the inch, one third of which, from the shoulder down-

* Vide Plate, fig. 3 and 4.

wards is round, diminishing gradually from half to one-third of a line in diameter. The remaining part of the Instrument is regularly flattened to the extremity, which is very thin, flexible, and spear-pointed. Both the edges are rendered as sharp as possible, to the extent of *three lines above the angles*, which are very obtuse, and only one-third of a line in breadth. From the point of the Needle to its insertion into the handle, it gradually increases in size ; by which mechanism, not only is less resistance opposed to its introduction into the Eye, but the escape of any portion of the aqueous or vitreous humour is also at the same time effectually obviated. The handle is of the usual length, and octangular ; on one side of which are three dots, answering to the cutting edges, as a guide to the Operator

when the point of the Instrument is concealed within the organ of vision.

The Needle thus shortened, is still of a very sufficient length for the operation, and leaves the Surgeon more command over the motions of its point. For the greater the length of the Needle, the larger arc of a circle must it describe in its necessary movements, and consequently the liability of wounding the delicate internal membranes of the Eye must be proportionably increased. Besides which, we are not so capable with a long Needle, accurately to ascertain how far it has penetrated into the globe, or what degree of power we are exerting, before an opportunity is afforded of seeing it through the pupil, or when it happens to be suddenly obscured by the effusion of the opaque contents of a milky Cataract.

From experience too I learnt, that the

tendency to pain during the operation, and to inflammatory symptoms afterwards, is counteracted, *cæteris paribus*, nearly in the ratio of the diminished size of the Needle. Hence, mine is reduced to the greatest degree of tenuity of which it is susceptible, without hazard of breaking. Against this slender form of the Instrument, one objection has been incidentally made by a Practitioner whom I much respect, namely, that it inflicts a *punctured* rather than an *incised* wound ; a species of injury followed sometimes by alarming symptoms. In reply to this remark I should say, that the only objection to the *punctured* wound, arises from its form and the danger of contusion. This cannot, however, be justly urged against my Needle, which is so constructed as to make a clean longitudinal cut, without in the slightest degree bruising the parts through which it

passes. And surely, where the primary object is to obtain reunion by the first intention, in order to guard against subsequent irritation, we cannot too studiously avoid enlarging the extent of the solution of continuity.

With the advantage of a very small incised wound, my Needle is particularly fitted to reduce the lens and its capsule into small fragments, "by turning the Instrument," as Mr. Pott expresses it, "round and round between the finger and thumb within the body of the Cataract, after its texture has been previously well loosened."* In order more effectually to accommodate the Needle to that purpose, it is *rounded*, instead of being flattened, to some distance below the shoulder, and the angles are rendered obtuse, to prevent their wounding the Iris, during

* Pott, on Cataract, p. 28.

its rotatory motion within the globe of the Eye.

Valuable as these improvements of the Instrument may be, I cannot recommend its indiscriminate employment. For, accidents will be liable to happen from using this very delicate Needle, unless the Operator possess an exceedingly steady hand, a considerable share of boldness and decision, and a practical acquaintance with the uncertain resistance that is opposed to the passage of an Instrument through the tunics of the Eye. It is, however, to the circumstance of its diminished size, and peculiarly slender figure, that I am induced to ascribe the very favorable result of my operations.

The unsuccessful issue of most of the cases operated on formerly may, probably, in a great measure, be imputed to the ill-constructed and bulky size of the broad

spear-pointed Couching Needle used by our Ancestors. Such an Instrument, not occupying the large breach made by the operation, endangered the escape of the humours; at the same time that the extent of the incision, besides exciting more pain, was liable to superinduce a higher degree of inflammation. By the unavoidable loss of the fluids, and the consequent flaccidity of the Eye, the risque of injuring the Iris became proportionably greater. If to the above we add the defective anatomical knowledge of the ancients with respect to the structure of the organ of vision, and especially of its *posterior* chamber, we can be at no loss to account for the general failure of their operations.

But the above described *straight* Needle, although it proved admirably adapted for simply *lenticular* Cataracts, I found by no

means equally well calculated for the thickened and tenacious *capsular* species. The elasticity and resistance of the latter, enabled them to elude my efforts, with that Instrument, to divide them into sufficiently small shreds for speedy solution in the aqueous humour. In instances of this description, I have succeeded infinitely better by the aid of my *curved single-edged Capsule* or *Iris Knife*, which I directed to be made for the express purpose of operating on Stephen Manbridge; whose Case is related in the next Section. The subjoined account affords a correct description, and the accompanying Plate* an accurate delineation of this Instrument.

The blade of the Knife is exactly one inch in length, half of which is straight,

* Vide Plate, fig. 5.

the remainder very slightly curved to the extremity. It cuts only on the concave edge, from the point upwards, to the extent of four lines. From the point of the Instrument to the middle of the blade, at which part it is only half a line in breadth, its thickness gradually increases; from thence to the handle it is conical, its diameter being progressively augmented from one-third to half a line. The handle is of the same length and shape as that of the Needle. There are three dots corresponding with the convex, or blunt side of the Knife; the reverse is plain. This circumstance should be constantly borne in mind by the Operator, in order that he may be able to ascertain with certainty, the exact position of the blade when it is buried within the ball of the Eye.

The Knife, reduced to the smaller size

represented in the Plate,* is equally applicable to the same species of disease, occurring in infants, and young persons. I have operated with it, among others, on the *capsular* Cataracts of an infant only *six months*, on another nearly *twelve months* old, and on two children *three years* of age, in the most satisfactory manner, and without the smallest subsequent inflammation. This Knife, besides being no less manageable, is likewise a far more *safe* Instrument for such unsteady subjects, than the Needle. For the Iris is not endangered, the *back* of the Knife only being opposed to its posterior surface. The slight curvature of the Instrument gives us also a very effectual purchase, so that even the *elastic* Cataract can be easi-

* Vide Plate, fig. 6.

ly divided by its sharp cutting edge into the smallest portions for speedy dissolution in the aqueous humour.

The Speculum is the Instrument employed for fixing the Eye during the operation. Celsus asserts, that the disordered Eye may be kept sufficiently still by binding wool upon the sound one.* Hence we may infer, that he neither employed his fingers, nor any speculum, for steadyng the affected organ. If this plan was found to answer, it could only be from the sympathy which, after a certain age, exists between the eyes, and which may make it difficult to move one, without moving the other at the same time. Although fearful of the

* “Quinetiam ipse Oculus qui curabitur, immobiliar faciendus est, supra alterum Lanâ impositâ et deligatâ.” Celsus de Medicin. L. 7. cap. 7, sect. 14, p. 434.

necessity of great local violence, the influence of which on the diseased Eye might be uncertain, the high and deserved reputation of Celsus determined me to try the result of a practice, which, though since overlooked for centuries, he recommends without the least qualification. I found, as might be expected from such authority, that the proposed pressure on one Eye, was actually capable of producing very decided effects on the other; and in the absence of more certain expedients, would be of no inconsiderable advantage during the use of the Needle. It may still be adopted as an useful auxiliary to such artificial means as modern Practitioners have invented under the name of Specula, to be applied immediately to the organ on which they are preparing to operate. The one which has been for some years generally preferred on these oc-

casions is the Elevator of Pellier,* a late celebrated French Oculist. As this Instrument is made of thin silver wire, and the bearing part, which is opposed to the superior spherical surface of the Eye, is nearly convex, it follows that, in effecting the requisite steadiness of the globe, so much partial pressure must be applied, as cannot fail to occasion uneasiness, and to endanger contusion, with subsequent inflammation of the coats of the Eye. In the hope of obviating these inconveniences, I caused a Speculum to be constructed somewhat like Pellier's, but with wire double the usual diameter, and arched in such a manner as to embrace, by its corresponding concavity, a large segment of the upper portion of the globe ; the whole surface of contact being flattened and guarded with silk or fine leather, neatly sewed

* Pellier Memoir. sur l'Œil.

round the bow. — This apparatus proved much more effectual in confining the Eye, and with far less pain. But the angles, though somewhat acute, being parallel, and upon the same plane, the Instrument could not be introduced underneath the upper eye-lid, for the purpose of removing it sufficiently out of the way of the Operator, without overstretching the outer canthus, which, when in an excoriated or contracted state, suffered a good deal of annoyance.

The result of a series of alterations in form and construction, is the Speculum that I have the satisfaction to submit to the probation of the Profession, and which will, I persuade myself, be found by others as it has proved in my own practice, well adapted to afford, in the most easy and effectual manner, all the assistance that can be desired from Instruments of this sort. The annex-

ed Plate* exhibits such an exact front and back view of the Speculum, both in regard to size and figure, as to supersede the necessity of a minute verbal description.

More than one Speculum is unnecessary for persons of mature age ; because in adults, there is less *real* difference in the relative size of the Eye-ball than is generally imagined ; the *apparent* difference depending upon the opening of the Palpebræ, rather than any great variation in the bulk of the globe. For infants and young persons, two Specula with proportionally smaller curvatures will be required.

* Vide Plate, fig. 7 and 8.

SECTION VIII.

ON THE IMPROVED MODE OF CONDUCTING
THE OPERATIONS FOR THE CURE OF
THE DIFFERENT SPECIES OF
CATARACT.

HAVING already pointed out the different Species of Cataract, I shall not dwell upon their characteristic marks, because these can best be learnt by practical observation and experience. There are not indeed any infallible criteria by which the real nature of a Cataract can always be ascertained previously to the introduction of the Needle. The want of such knowledge does not, however, essentially influence the result of the operation. For, with the exception of particular difficulties that may incidentally arise, and against which a Surgeon, who possesses the requisite qualifica-

tions* ought always to be prepared, the ensuing methods of operating will be found generally applicable to all the different forms of the disease.

A much more important consideration is the *fitness* of the Case for the proposed plan of Cure. This includes two points of the highest moment. First, whether any attendant symptoms render the operation at the time improper. Secondly, how far it is likely to be ultimately successful. Under the first head are embraced the general health of the patient, and any local affection, which, by increasing the irritability of the organ, may endanger subsequent inflammation.—The second, as comprehending the prognosis, is of great consequence to the reputation of the Practitioner, and of still greater

* Vide Page 81.

as it regards the feelings of the patient. For should the patient, *after* the operation, find that he had been deceived by the promises of the Surgeon, his situation will be more melancholy than ever, as he is then deprived even of hope.

It would be an almost endless task to enter into all the temporary causes, which should induce us to engage in, or to postpone the operation. Various and complicated as these may be, a practical Oculist should be fully competent to estimate them, in order to form a correct judgement on the case. On the subject of the prognosis, however, I must add a few words.

When the parts are in a perfect state of aptitude, the operation, if skilfully performed, is productive of so little present pain or future danger, that we are justifiable in yielding to the wishes of our patient,

as I have sometimes done, should they extend no further than to the removal of an unsightly deformity. This is, however, of trivial importance, compared with another consideration which the Surgeon must take entirely upon himself: namely, the probable condition of the organ after the successful completion of the operation. It cannot be necessary to enumerate all the rules by which the sensibility of the retina may be ascertained, on which we are principally to ground our prognosis, and determine, whether we are to be deterred by fear, or encouraged by hope. On this topic I cannot help expressing my astonishment at the timidity of some of my Brethren, who, on account of the slightest doubts of ultimate success, have declined, and even dissuaded from the operation. It would certainly be inexcusable to promise more than we have the fair-

est prospect of accomplishing. Emboldened, however, by repeated experience in many apparently forlorn Cases, I do not hesitate to propose, and often to advise the operation in most instances of even an equivocal character: always taking care to represent to the patient the probable chances of failure or success.

These observations will be best illustrated by relating the fortunate issue of a Case, accompanied with such a complication of untoward symptoms, that few Practitioners, who suffer themselves to be influenced by prevailing opinions on the subject, would, I apprehend, have dared to undertake the operation.

Mr. Maud, Tottenham, aged sixty, athletic and healthy, in December 1811, without any preceding local pain, first discovered that his sight was sensibly impaired. This defect came on suddenly, with the imagi-

nary perception of a black spot, somewhat resembling a small spider. Brilliant colours seemed also dancing before his eyes. These ocular spectra changed their relative situation with the different motions of the organ. Every thing at the same time appeared as if involved in a thick fog, and the extent of vision began gradually to shorten. In little more than three months from their commencement, this assemblage of symptoms had increased so much, as to render him incapable of recognizing any person's features when close to him, or of distinguishing objects of considerable magnitude at a short distance.

Such was the state of his disease, when he consulted me in April 1812. The Eye-balls appeared preternaturally large and prominent, the vessel of the Conjunctiva somewhat turgid, the Cornea *perfectly transparent*,

and the Iris very inactive on exposure to different degrees of light. After the application of Belladonna to the Palpebræ had produced a considerable dilatation of the pupils, I could not, by the most careful examination, satisfy myself that there was any remarkable opacity of the lens, more than what is frequently discovered at that period of life.

I could, therefore, attribute the *obscurity* of vision and short sightedness only to the existence of *black* Cataraet, and the other phenomena to some affection of the Retina. As there was a probability of relieving the first by removing the Cataract, and as I was not without hopes of improving the condition of the Retina, by exposing it again to its proper stimulus, I made no scruple in recommending the operation. All this being fully explained to my patient, he consented to what he considered merely as an

experiment on the *left* or worst Eye. The operation was performed in the manner that will be presently described, and with so little pain or inconvenience, that, still retaining sufficient sight with the right Eye, he was able to walk immediately after it, from Great Russel Street to Wellclose Square, a distance of not less than three miles. The lens was *hard*, and the capsule free from opacity. No inflammation succeeding, in a few days he returned to Tottenham.

Soon after the operation, the disorganized Crystalline and its tunic were very opaque from the causes I have mentioned, p. 58. Finding his sight worse than before the introduction of the Needle, my patient became more uneasy as to the issue. My own feelings were very different ; the diminution of his sight, in proportion as the Cataract assumed a greater degree of opacity, gave me

every reason to believe, that the previous defect had arisen from the imperfect passage of the rays, which had been increased as the opacity of the medium increased, and would probably be removed with the removal of the intervening obstacle. As the absorption was slow, it seemed adviseable to repeat the operation, which was effected with as little inconvenience as before.

The result of the case is most satisfactory. The pupil is now beautifully black, the Iris has regained the most complete activity, and vision is so far improved, that he can readily discern surrounding objects, and with the assistance of a proper glass can read a newspaper and common sized print with ease and correctness.

This Case, besides the encouragement it holds out to undertake the operation under so many disadvantages, proves also, that the

Ocular Spectra, which, though lessened, still disturb him, should be attributed to some imperfection in the immediate seat of vision, rather than, as is done by most authors, to a morbid affection of the lens. In the instance above detailed, the retina may have been injured by the irregular refraction of the rays of light in their passage through the diseased humour. This supposition is the more probable from the Spectra having gradually diminished since the sight has been recovered. That such illusions are not necessarily connected with any opacity in the lens, is satisfactorily evinced by a number of Cases, one of which was lately introduced to me for my opinion by a Surgeon of eminence. In this instance there is not the least impediment to the transmission of light, yet the Ocular Spectra are extremely

irksome to the patient, a lady, who has laboured under them for nearly twelve months.

Before we describe the operation, it is necessary to say a few words on the manner of applying the Speculum, which is adapted to either Eye, for the purpose of steadyng the globe; and on the most convenient position of the patient during the introduction of the Needle.

The Surgeon should direct the patient to fix his eye steadily as if looking at some object situated considerably lower than the horizontal line of the pupil, in which situation of the eye-ball, the perpendicular concavity of the Speculum should be carefully placed upon the upper convex portion of the Sclerotica, immediately behind its junction with the Cornea. The grooved rest or shoulder, formed in the posterior semicircular edge of the Instrument, will thus receive the curved

margin of the tarsus, which, by sliding the speculum upwards and backwards, will be raised and supported underneath the arch of the orbit ; and thus the superior part of the anterior hemisphere become fully exposed to view. So large a portion of the upper half of the eye being embraced by the smooth, broad, and accurately adjusted curvature of the Speculum, the pain excited by its application is very inconsiderable. For the degree of pressure upon each individual part will be diminished, in proportion to the number of points of contact.

By making the rest or shoulder of the Instrument describe the segment of a circle, the tarsus is gradually raised higher and higher from the angles towards the centre, which is agreeable to its natural movements. By this mechanism the palpebræ are kept raised more effectually, and with far less in-

convenience to the patient, than by the common method of introducing the curvature *underneath* the eye-lid. The lower part of the handle may be bent more or less, according to the respective prominence of the forehead, or ball of the Eye.

In using this, or any other Speculum of the kind, it is necessary, by the interposition of the thumb, to avoid pressing against the upper edge of the orbit. By not attending to this circumstance, should the supraorbital nerve,* as it sometimes does, run superficially over the edge, or through a notch only of the os frontis, instead of passing through its customary foramen, it may be severely bruised. Such an event once occurred to my observation, and the distress endured by the patient at the time, and for

* See Monro's Osteology, p. 1, ch. 11. article, Os Frontis.

some weeks after, induces me particularly to enforce the above caution.

If the operation is on the *left Eye*, the patient, being seated in a low chair, in such a manner that the light may fall laterally on the Cornea, rests the occiput against the breast of an assistant, who with one hand passed under the chin, supports the head, and with the other applies the Speculum, to controul the motions of the eye-ball. The Surgeon in the mean time, sitting at a convenient height before the patient, depresses the lower lid with the fingers of his left hand, whilst the right is engaged in directing the Needle.

When the *right Eye* is the subject of the operation, it has been customary to propose, that the Surgeon should take the Needle in his left hand. This appears at first sight more artificial; but it is unquestionable, that

the constant use of the right in this part of the world, gives most men a greater command and strength in that member. Should the Operator be thus circumstanced, rather than run the risk of doing mischief by the affectation of appearing dextrous, I would recommend him to place the patient on a sofa or low table, on his back, and seat himself conveniently at his head. The Surgeon will then find the fingers of his left hand exactly in the situation to take charge of the superior palpebra, and to steady the organ, without the use of any Speculum, (the Assistant at the same time depressing the lower lid), while his right is devoted to the management of his Instrument.

The above directions are applicable to cases of every description, with this difference only, that younger subjects and children require more powerful coercive mea-

sures to guard against accidents during the operation. The degree of restraint necessary to be imposed in each individual instance, and the manner of applying it, must in a great measure be left to the judgement and ingenuity of the Practitioner. I have sometimes had the little patient properly secured on a low table, and operated with success. On other occasions, it has been found more convenient to place the infant on his back in the lap of an assistant, who can command the legs and arms, whilst I have confined the head betwixt my own knees, elevated to a commodious height by a stool, which supported my feet. This position places the infant so entirely in the power of the Operator, that without any change of posture, and even without the assistance of a speculum, he can, if ambidexter, with

facility perform the operation successively on each Eye.

After all, the difficulty of securing a young subject is so great, as to have alarmed parents, and deterred Practitioners from undertaking the operation at so tender an age. But ample experience convinces me, that there is no period of life at which it ought not to be attempted, as it may be accomplished with safety. And besides the advantages of thus early operating, described at page 92, I may now add, that absorption takes place with greater rapidity, so that the cure is more readily completed, and with far less danger of attending inflammation than in the adult.

We have now gone through every necessary preliminary step, excepting one important improvement of modern Surgery, viz. the dilatation of the pupil by means of

(Atropa) Belladonna. The singular property which this, in common with a few other narcotic vegetables, possesses, of causing the Iris to expand, whether externally applied or internally administered, was long ago noticed by our excellent Botanist Ray, and of late years by some Continental Writers. It is only, however, since diseases of the organ of vision were deemed objects worthy the particular attention of the scientific Surgeon, that this knowledge has been turned to any practical advantage.

One of the principal dangers incident to all the different operations for Cataract is the injury of the Iris. To prevent this accident, nothing contributes so effectually as the expanded state of the pupil produced by the above mentioned narcotics, because the pupillary margin of the Iris is, under such circumstances, withdrawn further from

the point of the Instrument, at the same time that we are enabled more distinctly to see and controul its different movements in the Eye.

But some inconveniences have resulted from the common mode of employing Belladonna. When the organ is particularly irritable, or labours under chronic inflammation, I have seen the vessels of the conjunctiva highly excited, and great pain follow the usual method of applying the Extract, or a strong solution of it, *within* the Eye-lids. This effect arises, probably, from the introduction of an extraneous substance between two very sensible surfaces rapidly and almost constantly moving upon each other. To avoid such consequences, I have been in the habit of spreading the soft Extract thinly over the integuments of the pal-

pebræ, and have uniformly found, that when it is so applied, and suffered to remain for a few hours, or even for a night, the pupil becomes equally expanded, without any attending unpleasant circumstances. But in whatever manner Belladonna is used, there are subjects in whom it occasions double, or confused vision, with various ocular Spectra. Lady T. to whose Eye I directed it to be applied very freely, in order to enlarge the pupil, which had become nearly obliterated by preceding inflammation of the Iris, never failed to experience these symptoms to a most remarkable degree; nor did they entirely subside, until some days had elapsed after the discontinuance of the application.

It must be admitted, however, that such is by no means a *general* consequence. On the contrary, in by far the majority of instances, *Belladonna* solely affects the Iris, the

sympathetic as well as associated actions of which, for a time, it wholly suspends.

This is not the place to enquire, whether the supposition which attributes the above influence to the operation of this narcotic on the *radiated muscular fibres* of the *Iris*, be entitled to credit. In my Lectures on the Anatomy, Physiology, and Diseases of the *Eye* and *Ear*, I take occasion to show, by at least plausible arguments, deduced from the anomalous actions, and the singularly organized texture of the part, that such an inference is highly problematical and gratuitous.

I may add, what is of far more practical importance, that not only Extract. *Hyosciam.* applied externally to the *Palpebræ*, but also a strong infusion of (*Datura*) *Stramonium*, instilled into the *Eye*, is equally capable of producing a dilatation of the pupil.

Having now conducted my Reader to the Operation itself, every sentiment of gratitude and respect obliges me to commence a desription of it in the words of my deceased Friend. In doing this, I have the double gratification of paying a due respect to departed worth, and of recording the *only authentic document* which establishes his claim to an important improvement in this branch of Surgery. I will just beg to premise, as an additional proof of his friendship, that he obligingly enclosed with the first communication, two of his improved Needles for my own immediate use.

“ MY DEAR FRIEND,

“ I confide the method of operating which I pursue for Cataract to your honour, and I am very certain that it is safely deposited. I shall not have time to point out all the advantages which result from this deviation from the old method of Couching; but simple as they may appear, they are very important,

as you will perceive when I detail all the circumstances, which I shall sometime do, in a Treatise on the Cataract.

“ I always use the solution of Belladonna, and never begin the operation until the pupil is as much dilated as it will admit of, keeping the eye, by means of Pellier’s elevator, or else my own fingers, as steady as possible. The object of my introducing the Instrument into the eye is, to cut the capsule in the *anterior* part of the crystalline ; and therefore, as the lens is generally more dense towards the *centre*, I take care that it shall pass through the crystalline as near to the capsule as possible. That the Instrument may traverse the lens freely, you will observe that it is made of the greatest admissible tenuity, and flat, and that it cuts towards the point on each side. I find by experience, that it can be conducted, with care, through the hardest lens ; whereas the Needles, such as Scarpa’s and Hey’s, only push the whole lens before them, and without being able to carry the Instrument to the capsule, the lens is made to press on and protrude the Iris ; whence results the consequent inflammation. As for the crystalline itself, you may or may not meddle with that ; it may be well to loosen its texture in some instances, but you ought never to depress it.”

* * * * *

“ The Instrument should enter the Sclerotica a-

about a line behind the ciliary ligament, and should be conducted through the anterior part of the crystalline which is the softest. You may loosen the texture of the Cataract before you divide the capsule, or after, as in the operation seems most convenient, but the *capsule must be divided at all events.* I do not much care what becomes of the *substance* of the crystalline. I sometimes let it go in considerable quantity into the *anterior* chamber, if it seems tending that way, but I never push it, because that must press the Iris. N. B. Follow Hey's rule, to be careful *not to do too much.* After the operation, the plan with me is purely antiphlogistic, and I believe you well know what that is. If your operation should not succeed at the first attempt, describe to me the appearances, and I will gladly give you my sentiments as to repeating it.

“ With respect to congenital Cataracts, from the repeated conversations we have had on the subject, it seems scarcely necessary for me to remind you, that they are generally capsular, the whole or greater part of the lens having probably been, at some antecedent period during the foetal state, spontaneously absorbed. I shall only add to what I have already stated, that the steps to be pursued in the operation are nearly similar to those adopted for lenticular Cataract; the great object being, either to make a

sufficiently large central aperture for the rays of light to pass freely through it to the retina, or else to endeavour to tear the condensed capsule into as small fragments as possible, when it will become soluble in the aqueous humour, and be gradually absorbed ; for which purpose, you may use the Needle with much more freedom than in the former Case.

* * * * *

“ With our united regards,

“ I am, yours faithfully,

“ J. C. SAUNDERS.”

Extracts from Letters, dated
April, and August, 1808.

A more explicit, unaffected, and intelligible relation of Mr. Saunders's method of procedure in operating for Cataract could, I conceive, scarcely be given, than is contained in the above extracts from his valuable Letters. It may here be remarked, that in these statements, the *posterior* operation alone is detailed ; Conradi's, or the *anterior*, having been adopted by him but a

short period* before that lamented event took place, which deprived the Public of a philanthropic Member, the Profession of a highly zealous and truly scientific Practitioner, and me of a sincere and esteemed Friend.

From the practical observations I have been enabled to make, I am very much inclined to believe, that had my worthy and enlightened Preceptor lived to witness the effects of the latter process, he would either have abandoned the practice altogether, or have confined it, as Conradi did, to the *fluid* or *soft* Cataract. For though, by introducing the Needle into the Cornea, instead of passing it, in the usual manner, through the Sclerotica, there is less danger of inflammation; still the Operator finds

* Mr. Saunders died February the 9th, 1810, of an apoplectic stroke, in the 37th year of his age.

himself infinitely more straightened in the use of his Instrument, and it is scarcely possible to act very freely and advantageously upon a hard Cataract, without causing the evacuation of a larger or smaller quantity of the aqueous humour during the Operation. In which case, the previously dilated Iris instantly contracts, and advancing towards the concave surface of the Cornea, is in great danger of being wounded. This danger is much increased in those dense and elastic capsular Cataracts, which are by no means unfrequent among the long neglected congenital species. Even when it is performed successfully, as described in Dr. Farre's edition of Mr. Saunders's posthumous Work, still the object of the operation appears to me far from complete. A small aperture only being made through the cen-

tre of the capsule, the sphere of vision must ever remain circumscribed, as in the permanently contracted pupil.

Imperfect, however, as the result of the operation, in these instances, has proved, there are Cases in which it may be advantageously adopted. By means of the improved Needle, the common Cataract can be punctured with facility ; and if it be of the fluid kind, with a transparent capsule, all the ends of the operation may possibly at once be accomplished, or the disease reduced to the capsular species of the most favourable and manageable description. The ease with which the operation is performed has also induced me, on some occasions, to avail myself of it, in order to ascertain with greater certainty, the real nature and consistence of the Cataract ; information which cannot always be satisfactorily acquired by

merely inspecting the Eye. The essential character of the complaint being by this means fully developed, we can the better regulate our future proceedings, and thus avoid embarrassment during the operation.

The first trial I made with the Instruments sent to me by Mr. Saunders, was upon Hannah Dove, a poor woman, of a weakly constitution, nearly forty years of age, from Sutton Ashfield, Nottinghamshire. She had laboured under lenticular Cataract in each eye for several preceding years, during which period she had borne four children, whom she could only recognize individually by their voices. She could, indeed, perfectly distinguish light from darkness, and, under favourable circumstances, was capable of decyphering the outlines of large objects. The pupils were

circular, and obedient to the different degrees of light admitted to the Retina.

Agreeably to the above directions, I operated the same day on both Eyes in immediate succession, assisted by my friend Dr. Marsden, senior Physician of the General Hospital near Nottingham. She described the pain as scarcely exceeding what would be inflicted by the prick of a pin. The subsequent symptoms were not less mild. On account of the firmness and tenacity of the lens I found, however, considerable embarrassment and some difficulty in completing the operation ; which in a few weeks required to be repeated. After the second operation she returned home : and as her vision from that period gradually improved, it was not deemed necessary to introduce the Needle a third time. The process of absorption was, notwithstanding, so extreme-

ly tardy, although sensibly accelerated by the new stimulus given to the organ by the accidental occurrence of an inflammatory attack, that the pupils did not recover their perfect transparency for nearly twelve-months.

This Case presents two objections against Mr. Saunders's Needle and mode of using it. First, the hazard of injuring the Iris by our efforts to disengage the point of the Instrument when it happens to get entangled in a diseased lens of the above description ; and next, the tediousness of absorption, owing to the want of a more minute division of the Crystalline. Nor are these the only objections, as we shall see by the following Case.

Hannah Chappel, a poor woman from Calverton, Nottinghamshire, aged 36, laboured under Lenticular Cataract in each Eye for the

space of seven years previously to consulting me. I had been fortunate enough to restore the sight of the *right* Eye by a *single* Operation, though several months elapsed before the whole of the opaque lens disappeared. At eight o'clock in the morning of Tuseday, April 16, 1810, the Operation was repeated as before on her left Eye, for the purpose of quickening the absorption of a remaining portion of the Cataraet. This process was attended with so little pain, that she seareely felt conseious when it was completed. But no sooner did the Needle come in contact with the hardened nucleus, than it suddenly passed into the anterior chamber, and became firmly impaeted between the inferior part of the Iris and Cornea. The pupil *instantly* reassumed its natural transpareney, and my pa-

tient had, in consequence, the gratification of distinguishing every surrounding object.

A few hours of perfect tranquillity were, however, unhappily succeeded by great tension and lancinating pains of the Eye-ball, which extended to the temple and forehead of the same side, accompanied with a profuse secretion of acrimonious tears and an extreme sensibility to light. An active dose of submuriate of mercury and jalap was exhibited, and soon produced its full effect; after which a saline draught with tinct. digital. was directed to be taken every three hours. The affected organ in the mean time was occasionally fomented with a decoction of poppy heads, and in the intervals a warm sedative collyrium was ordered to be very assiduously applied. The symptoms continuing urgent, at eleven o'clock at night, sixteen ounces of blood

were drawn from the arm by a *large* orifice, the sudden loss of which produced syncope, with a great abatement of her sufferings. She afterwards obtained some repose, and early in the morning I found her better in all respects. As the Eye was still however in a very irritable condition, and she had occasional paroxysms of acute pain, which the least motion and even the act of speaking aggravated, four leeches were applied to the Eye-lid, and the purgative was repeated.

By rigidly adopting the antiphlogistic system of treatment for a few days the inflammatory affection entirely subsided ; and the following is the result of the Case, which I give in the words of the very judicious and enlightened Physician who obligingly assisted at this, as at the former Operation.

“ I have seen Hannah Chappel, and have delivered to her the Spectacles as you re-

quested. On examining the Eyes, the pupils appeared perfectly natural and clear, except that I could discern in the *right*, a very thin, small, floating substance, which seemed to be a part of the capsule of the lens, or a small portion of the lens itself, not quite absorbed. She said “she could not distinguish objects so clear as with the other Eye, but that she could see to *patch* any thing very well.” When she put on the Spectacles, she was highly gratified with the improvement of her sight. She could then distinguish, at a great distance, the lines of a newspaper, but could not tell the letters, as she had never been taught to read.”— Although my patient ultimately recovered, her restoration to sight was not only tediously slow, but the Eye suffered a great deal of unnecessary pain, and was in imminent danger of being lost. All this in-

conveniencr arose from the pressure of the hard undivided nucleus of the lens on the very sensible Iris; which, we shall find, is provided against by the alterations in the Needle, and by the different mode of using it.

The method of operating, suggested by the above, and a few other Cases of a similar description, which I have practised for a considerable period with the utmost satisfaction, is as follows;

The patient being properly seated, the pupil fully dilated, the Eye steadied, and all the other preliminary steps duly arranged, the Needle is introduced in the usual place and manner through the Selerotica, at a distance not exceeding one line from the Cornea, with its flat side parallel to the plane of the Iris. The Instrument is then carried to the front of the Cataraet, its point

being projected across the anterior chamber to the nasal margin of the pupil. The cutting edge is next turned backwards ; when, by moving the Needle so as to describe the segment of a circle, the capsule with the enclosed lens is divided into nearly equal portions. Proceeding cautiously in a similar manner, by repeated transverse and perpendicular incisions, the Crystalline and its enveloping membrane are reduced into very minute fragments. This object having been accomplished, the handle of the Needle is carefully rotated between the finger and thumb ; by which procedure the capsule is effectually detached from its connection with the zona ciliaris at every point, and the cohesion of the component parts of the Cataract more certainly destroyed. The whole, or as many of its fragments as the circumstances of the Case will admit, *without danger*

of wounding the Iris or ciliary processes, are then propelled into the anterior chamber by means of the flat surface of the Needle ; in which position the Instrument is now withdrawn from the globe of the Eye.

In Cases of *solid* Cataract, this plan of cutting it through the middle in the first instance, possesses peculiar advantages. So long only as the opaque lens remains in its capsule, supported in the anterior fossula of the vitreous humour by its natural connection with the hyaloid membrane, will a sufficient degree of counter-resistance be afforded to admit of the above mode of operating ; by which the danger of the Cataract revolving on the Needle and falling into contact with the posterior surface of the Iris, or of its nucleus escaping entire into the anterior chamber, is counteracted.

Even in the *soft* kind the capsule can, by

this procedure, be reduced into more minute shreds *before* than *after* its contents have been evacuated.

The *elastic* Cataract, a species of the malady characterized by a dense resisting capsule, containing a glutinous more or less turbid fluid, can scarcely be successfully managed in any other way. For if, instead of the first incision being made in the manner recommended, the Instrument be applied near the circumference of the firm elastic tunic, not only can little or no impression be made upon it, but there will be considerable hazard, by the very attempt, of either partially or wholly dislodging it, after which, it will be found almost impossible to subdivide or prevent it from pressing against some part of the Iris.

But it has been alleged, that Cataract in old people cannot be removed in the above

manner, owing partly to the unusual solidity which the nucleus of the lens is supposed to acquire, and to the decayed powers of absorption in declining age. My own experience justifies me in drawing a different conclusion, as I have operated upon a considerable number of individuals of both sexes beyond their fiftieth, and on several who had attained their seventieth year, without having hitherto met with a solitary instance of failure, or any unfavourable symptoms.

The following highly interesting Case I am obligingly permitted to publish.

Early in the Spring of 1812, I was consulted by Mrs. Monypenny, Guildford Street, Russel Square, a most respectable Widow Lady upwards of *eighty-four* years of age, on account of blindness. The complaint had commenced more than three years

before in the right, and about twelvemonths in the left Eye. On inspection, a completely formed lenticular Cataract was plainly discernible in each. The pupils being perfectly circular and freely moveable, she was able to distinguish light from darkness, vivid colours, and, in a favourable situation, the outlines of large objects. As she enjoyed, in general, a good state of health, and as the organ was also in other respects apparently perfect, I made no scruple to recommend the Operation; to which, after due consideration, she determined on submitting.

The Operation was performed on the 25th of April, agreeably to the above directions, except that I did not judge it expedient to project much of the disorganized lens into the anterior chambers, their capacities being exceedingly small. This circumstance, added to the presence of an ex-

tensive arcus senilis, rendered the Case unfit for Extraction, and the diminutive size of the globe, equally unsavourable for Couching. My patient experienced so little uneasiness from the Operation on the left Eye, that immediately after the Needle was withdrawn, in compliance with her own urgent entreaty, the right was subjected to the same process. Subsequently, she underwent no other restraint than what the mildest antiphlogistic regimen imposes, yet neither pain nor inflammation ensued. She afterwards acquiesced in my proposal to repeat the process for the purpose of quickening the action of the absorbents, the divided portions of the Cataracts having coalesced.

The result of the second Operation, which was not followed by a single unfavourable symptom, I had some time after-

wards the satisfaction of learning personally from her son, Mrs. Monypenny having quitted London, to visit her relations at Rolvenden in Kent. He informed me, that by the greatest attention only, could he distinguish a particle of the lens floating in the aqueous humour of the *right* Eye not larger than a pin's point. The pupil in each Eye was, he assured me, perfectly black, the Iris actively obedient to different degrees of light, and her vision so far improved that, *without Spectacles*, she could discern the hands on a dial, and a variety of smaller objects, and that she had seen some Sheep grazing at a considerable distance from their House. He added, that it was impossible to ascertain from any *visible imperfection*, that she had been blind in that Eye, or that an Operation had been performed upon it.

In the *right* Eye the cure advanced more

slowly, on account of the Crystalline having attained a greater degree of firmness prior to the Operation. The whole Cataract, however, gradually disappeared, when her sight became in every respect as good in this, as in the other organ.

Several circumstances concurred to retard her restoration to sight. Besides the diminished size of the Eye-ball, and proportionally small quantity of aqueous humour, after the first Operation, Mrs. Monypenny suffered severely from repeated attacks of Jaundice, during which, the process of absorption was nearly, if not altogether suspended.

We are, however, from the foregoing statements fully warranted in deducing the following important inferences: First, That the Needle is adequate to complete the Operation, with safety and success, even in the

Cataracts of old people. 2dly, That in very advanced life, Nature is still capable of effecting the entire removal of the diseased lens, when reduced into small fragments; although somewhat more time may be required, than in younger subjects.

The two following Cases of Cataract, which, if not congenital, occurred at a very early period of life, and in which the Operation was successfully performed at different ages, and under different circumstances, will be found particularly interesting, and serve to illustrate a number of propositions contained in the foregoing pages.

Miss B. Nottingham, seventeen years of age, has been, from her earliest infancy, afflicted with a Cataract in each Eye. Although her parents attribute the origin of the blindness, as well as her extremely delicate constitution, to epileptic fits, under

which she suffered severely during some of the first years of her existence, yet from the unsteady convulsive motions of her Eye-balls, so peculiarly characteristic of the *congenital* species, I have little doubt that the disease commenced before birth.

Being in September last on a visit in the neighbourhood, I was requested to examine the state of her Eyes. I found that, when not exposed to a strong light, the Iris dilated sufficiently to allow of a few lateral rays passing by the edge of the Cataract to the Retina; under which circumstances she could discern vivid colours, and the outlines of large objects.

The opaque lens had been successfully extracted from the *left* Eye, when she was eight years old, by one of the most dexterous Oculists in this Metropolis. Unfortunately, however, a portion of the Iris

protruded through the incision of the Cornea, and dragged the pupil obliquely into an oval form. This accident was speedily succeeded by a most violent inflammation of some weeks duration, which extending to the Capsule, rendered it completely opaque, and her vision, in consequence, nearly as bad as before the Operation.

The sufferings she underwent from that attempt, added to its unsuccessful issue, had hitherto deterred her from submitting to the Operation on the other Eye. Still anxious, however, to see, she was prevailed on, by a representation of the facility of the new method of cure, to take her chance.

My patient being duly prepared, I performed the Operation on the *right* Eye, about the middle of the month, agreeably to the foregoing directions, in the presence of most of the Medical Gentlemen resident in that

Town. The pain occasioned by the Operation was very trivial, and the subsequent symptoms were of the mildest description.

On the 20th of November she came to London, for the purpose of affording me another opportunity of inspecting the Eye. So much of the disorganized Cataract had, during this interval, been absorbed, that there remained only a thin reticular substance, through which the rays of light freely penetrated. Although this also would in a short time have been absorbed, yet in order to quicken its removal, the Needle was introduced a second time, without being succeeded by one moment's pain, or the slightest tendency to inflammation.

The pupil has now acquired a perfectly healthy appearance, and her vision is very greatly benefited; but the unsteady motion of the Eye still continues. On this

account, and from the novelty of every object, though she is capable, by the aid of glasses, of distinctly seeing the hand and figures on my watch dial-plate, she requires some moments to accomplish it.

The Cataract was soft and lenticular ; its capsule unaffected. This Case shows, that the lens does not invariably harden with years, and that though, in the majority of instances of the *congenital* species, the diseased Crystalline is either partially or wholly absorbed; and its tunic considerably thickened, neither of these changes are constant. From this Case likewise a strong argument may be derived in favour of the *early* removal of the *congenital* Cataract. For, besides the loss of Education, a long period must elapse before she can controul the vacillating motion of the globe produced by the irregular and unassociated action of its

muscles, and before the Retina will acquire its full energy.

But what is most to my present purpose, is the different result of the two modes of operating in the same individual ;—the unfortunate issue of Extraction, by the most skilful hand, on an Eye too the most convenient for the process, contrasted with the complete success of the improved method.

Happily, however, the injury done to the *left* Eye by the Operation of Extraction is not even yet irremediable. The opaque capsule, constituting *secondary* Cataract, can still be comminuted by the Needle, and afterwards absorbed. My patient is anxiously looking forward to this event, the success of which I am not afraid of guaranteeing.

The next Case of Michael Broom, High Wickham, Bucks, is not less worthy of notice. This poor man, who is in his *forty-*

fourth year, and of a dwarf-like appearance, has also laboured under Cataract in each Eye from his earliest infancy, if not from his birth. The disease, as in the former instance, was imputed to epileptic fits, which occurred very frequently, with only short intervals, during the first years of his life, and reduced him for a considerable period to great imbecility of mind and body.

The Cataracts being of the lenticular species, and the pupils possessing considerable activity in moderate degrees of light, he could distinguish objects though imperfectly by placing them in an oblique position.

In June 1810, he consulted one of our most celebrated Oculists, who still retaining the antient notions respecting the *maturity** of Cataract, and preferring Extraction,

* See page 56.

told him, that he must wait until the Cataracts should become *ripe*, to fit them for that Operation.

He was brought for my opinion last April by a Nobleman, from whose bounty he has hitherto derived his subsistence. His Lordship was induced to apply to me, in consequence of comparing the appearance of the Eyes with the description of Cataract in the former Edition of this Work.

My patient having spent *nearly half a century* in comparative darkness, despaired of his Cataracts *ever* ripening. After a few days preparation, I introduced the Needle into each Eye in immediate succession, and completed the Operation in the manner already described.

The Lens was soft and tenacious, and the Capsules free from opacity. The Cataracts were so safely and completely comminuted,

that I anticipated a very expeditious cure. In this expectation I was disappointed, the process of absorption, owing probably to the peculiarity of his constitution, being unusually languid. By repeating the Operation, the case has terminated to my entire satisfaction: the eyes have assumed the most healthful appearance, and the poor man has obtained such an improvement in his vision, that he can readily see every object around him, and with proper spectacles is able to distinguish, with the greatest precision and quickness, the second-hands of a watch, and the minutest dots made with a pen upon paper.

This case serves to prove the *limited utility* of Extraction, compared with the *universal applicability* of the mode of operating above recommended. For, Extraction cannot be successfully performed, unless the Lens

possess a considerable degree of solidity ; or, in the language of the antients, and of some moderns, until it is *mature* or *ripe*.

It is worthy of notice, that there was not in this Case, as is usual in *congenital* Cataract, any rolling tremulous motion of the eye-balls. We are not however on this account to conclude, that the Case was *not* congenital. The unsteady motion of the Eye prevails only in those instances in which the privation of vision is nearly complete ; and depends, probably, upon an incessant attempt of the organ to acquire, if possible, a correct knowledge of the figure of objects by endeavouring to view them on every side, until at length the motion becomes habitual and constant.

It is to the previous steadiness of this Patient's eyes that we must attribute the early facility with which he was enabled to

direct the muscles of the globe, and consequently to obtain a quicker and more perfect sight.

The description already given of the Operation will, I trust, be found so clear, as to render any further illustration, by Cases, unnecessary. I shall only remark in general, that I have never met with a single difficulty or embarrassment in operating on the different species of *lenticular* Cataract, since the improvements in my Instruments and the mode of using them were adopted. It is true, the time required for the entire absorption of the disorganized lens will vary according to the nature of the disease, and other incidental circumstances. In all Cases of this kind, however, the cure will be materially expedited by the above process, and the probable necessity of a repetition of the Operation much lessened.

From what has been advanced, it appears evident, that the above mode of operating is successfully applicable to every species of *lenticular* Cataret, and at every period of life.

If either Couching, or Extraction with all its attendant dangers to the organ of vision, is *ever* to be performed, it is, I conceive, *only* in those lenticular Cases in which the patient being an adult or aged, feels exceedingly impatient to take the chance of obtaining a *more rapid* restoration to sight; in which the lens exhibits the most certain marks of *great solidity*; and in which the Cornea is exempt from opacity, the Iris freely moveable, and the anterior Chambers capacious. Under such circumstances, and such *only*, I repeat, are we justified in hesitating which process to adopt, or even in appealing to the choice of the patient.

I shall now offer a Case, which may serve to illustrate the method to be pursued in those *dense congenital capsular Cataracts* which occasionally occur, and which demand some little variation from my ordinary mode of operating.

Stephen Manbridge, upwards of *seventeen* years of age, was *born* with a capsular Cataract in each Eye. This patient was brought to me in December 1811, by Admiral Hamilton's Son, from Boldre, New Forest, Hampshire. In this instance, such was the extreme tenacity and cohesion of the capsules, the *whole* of which were very opaque, that I found myself incapable of effecting the necessary division, by means of my straight, or curved Needle. It was in consequence of this, that I gave directions for making the *single-edged Capsule or Iris Knife*, described page 111, with which the

operation was conducted in the following manner.

The pupil having been fully dilated by the external application of Belladonna to the Palpebræ, and all the previous steps of the Operation duly arranged, the Knife was carefully introduced through the coats of the Eye, *two lines behind the Cornea*, with its convexity forward. The cutting edge of the Instrument being brought before the dense membranous Cataract, its point was conveyed across the anterior chamber as far as the nasal edge of the pupil, when, first by a central, and afterwards by repeated incisions in different directions, I succeeded in reducing it to small filaments. Part of the fragments being precipitated into the anterior chamber, in about ten weeks were entirely absorbed, leaving the pupils, beautifully transparent, and regularly contracting.

Still, however, when the Iris was unusually dilated, or when the Eyes were inspected laterally, a small triangular piece of the opaque Cataract attached, by its basis, to the ciliary zone, came into view. The Iris in each organ was left in the most perfect and active condition, and vision rendered so complete, that he could discern the very minutest objects with ease and correctness by the assistance of proper convex glasses; the use of which was by no means necessary for any of the common purposes of life.

The great mildness of the process cannot be better evinced than by stating, that he was regularly conducted on foot, immediately after the Operations, from my house upwards of a mile to his own lodgings; nor was he in consequence confined to his room longer than two days, and not an hour to his bed. In April he was taken into Mr.

Hamilton's service, and has been taught the duties of his situation with far less difficulty than might have been anticipated.

When he first obtained his sight, he judged very erroneously respecting distances, and the external figures and properties of bodies ; a defect in perception which he endeavoured to supply by the powerfully auxiliary sense of touch. He did not, however, describe objects as appearing to his apprehension *inverted*. That irregular convulsive motion of the Eyes, so peculiarly characteristic of *congenital* Cataract when accompanied with an opacity of the whole Capsule, was lessening when he left me, at which time he began to possess more command over the previously involuntary and unassociated action of the muscles.

Since the first publication of the above particulars, in the London Medical and

Physical Journals, October 1811, the young man has called in Great Russel Street. Dr. Adams, the well-known author of the Work on Morbid Poisons, and several other Professional Gentlemen saw, and minutely examined with me the state of his Eyes. We found the pupils of the *left* perfectly clear, and properly dilatable. In the *right* there was a small very opaque flocculent portion of the Capsule still remaining suspended in the posterior chamber. This unabsorbed membranous process did not, however, in the slightest degree, interfere with the functions of the organ. He could then distinguish, even without glasses, by bringing the object within *four* inches of his Eyes, the minutest points, or the finest hair strokes made with a pen upon paper, and was capable of discerning a pin at some distance on the ground. Nor were his visual powers

confined to near objects, for he could count the windows of houses situated half a mile off, and could clearly decypher the figures on a door across the Street. In short, by means of well-adapted convex Spectacles, his sight was as good as that which many persons enjoy, who have never experienced any complaint in their Eys. His Eye-balls likewise had become far steadier, and much more under his controul, than when he left London in April.

Precisely similar means should be adopted in the dense *elastic* Cataract, described p. 157; the Surgeon not neglecting the injunction to make its *central* division the first step of the Operation.

The curious Case of the Gentleman, who resides in Upper Wimpole Street, detailed page 61, was operated on in this manner, and with such ease and expedition, that he

was not aware of my having commenced the process, until he was made sensible of its successful completion by the restoration of his sight.

In the tenacious capsular, and even in the lenticular Cataract of very young subjects, the smaller Capsule or Iris Knife has been already recommended.*

But for the *secondary* membranous Cataract, as well as for that particular species of the disease, which is sometimes produced by the posterior lamella of the Capsule becoming opaque subsequently to the removal of the diseased lens, by the Operation of Couching, or Extraction, I have always found that Professor Scarpa's Needle, considerably reduced in size, and less curved at the extremity, is the most useful Instrument, employed as he directs.

* page 113.

In the event of the Cataract being *fluid* or *milky*, the foregoing processes are unnecessary. For the reasons assigned when speaking of the *anterior** Operation, the method of Conradi is, I must repeat, in such Cases, the most eligible; because, by simply puncturing the centre of the Capsule through the Cornea, a cure is sometimes very easily and rapidly accomplished. Should the plan even fail of success, on account of the opacity of the Capsule, which in this species not unfrequently exists, the Operation behind the Iris may afterwards be performed with greater facility and effect. The only danger, that can arise from this method, is the possible escape of a small remaining solid nucleus with the turbid fluid into the anterior chamber of the Eye, where

* Page 144, et seq.

by its mechanical pressure against the Iris, it may excite a great deal of irritation and pain. But even this, as will be presently shown, may be easily obviated.

Such I have found the best modes of treating the different kinds of Cataract that usually present themselves to our observation. For experience has taught me the advantage and necessity of diversifying, as above suggested, the methods of operating agreeably to the peculiar nature of the disease:—no *single* process, however well adapted it may be to one or more species of the complaint, being equally and indiscriminately applicable to all.

It is indeed to the mal-adaptation of the remedy to the condition of the affected organ, that we must attribute the most frequent cause of failure in the treatment of Cataract.

In the next Section I shall offer a few cautions and general remarks, to prepare the young Practitioner against some embarrassments, which occasionally take place. To include every possible incident would be tedious, and might even mislead others, by teaching them to expect what may, perhaps, never happen: and after all, such are the varieties in the form of the disease, and in the constitution of individuals, that nothing but long habit can give courage and presence of mind under every difficulty.

SECTION IX.

CONTAINING DIRECTIONS AGAINST CERTAIN DIFFICULTIES WHICH MAY OCCUR DURING, OR AFTER, THE OPERATION.

THE most frequent and important difficulty, and that which I shall first notice, is an adhesion which is sometimes formed, in consequence of previous inflammation, between the anterior portion of the Capsule of the Lens, and the posterior surface of the Iris. Happily this may be discovered, before the introduction of the Needle, by the application of Belladonna. If the dilatation of the pupil is thereby rendered complete, we may rest satisfied that the Iris is free. If, on the contrary, there is an irregularity in the pupillary margin, or if the contracted Iris is not influenced by that narcotic, we may be

equally certain that a partial or general adhesion exists.

In all Cases of *concreted* or *adherent* Cataract, the Operation must commence with detaching the adhesions ; by far the nicest part of the process. The separation should be effected by repeated and very gentle touches with the extremity of the Needle. And should the connection at any one point be found particularly firm, it will be much safer to leave a small portion of the adherent Capsule behind, than to run the risk of injuring the Iris, or of separating it from the Ciliary Ligament. There are Writers, who speak with much coolness on wounding this very delicate part of the Eye. From frequent experience, however, I feel it my duty to confess, that the longer I have practised, and the more my opportunities of observation have been multiplied, the more cause

have I to be persuaded of the great danger that attends any violence offered to the Iris.

In our description of the Operation, it was hinted that some difficulty might exist in the proper management of the fragments of the opaque lens: and, indeed, different opinions have been entertained, respecting the best method of disposing of them. Mr. Saunders thought it necessary to caution us “not to push the broken fragments of the Cataract into the anterior chamber, unless they tended that way.”* Professor Scarpa, on the contrary, without any qualification, recommends “all the moleculæ of a soft Cataract to be forced through the pupil.”† Our highly respectable Countryman Mr. Hey‡ gives similar

* Page 142.

† Scarpa’s Practical Observations on Diseases of the Eye, p. 382.

‡ Hey’s Surgical Observations, p. 59 and 60.

directions, but with a reserve which marks the accuracy of all his practical observations.

It is a well known fact, that if a comminuted Cataract finds its way into the anterior chamber of the Eye, or is there deposited, absorption takes place with at least equal safety, and with greater readiness, than if it is suffered to remain in its natural situation behind the Iris. In attending to the methods of operating before pointed out, the practice ought, therefore, to be adopted in every species of the disease, and at every period of life: except, when the pupil is more than usually contracted, and cannot be made to expand by any narcotic application; or when the anterior chamber is preternaturally small. In these cases, there would be great danger of wounding, or forcibly dilating the Iris, by pushing any considerable quantity of a hard Cataract into the anterior

chamber. These are the only instances, I conceive, in which we need be fearful of propelling the detached portions of the opaque lens through the pupil ; and of these, an experienced Surgeon will always be aware.

But it sometimes happens, that the *hard* nucleus of a Cataract escapes undivided, or has been injudiciously projected, into the anterior chamber. This, in an irritable state of the organ, will be followed by pain and long-continued inflammation, ending occasionally in suppuration of the Eye, and consequent total loss of sight. Whenever an event of this kind happens, I would recommend that anterior operation which the late ingenious Mr. Gibson* proposes to be adopted in every instance of the soft lenticular Cataract, after it has been previously reduced by the Needle

* Gibson on Artificial Pupil, &c. sect. 3, p. 106.

to a flocculent state. In ordinary cases, however, it does not appear to me necessary. But when we apprehend inflammation from a hard nucleus escaping into the anterior chamber, we cannot do better than immediately extract it through a suitable opening of the Cornea.

The principal source of danger subsequent to the Operation is high inflammation. With proper caution before, and during the Operation, this will seldom happen. But we cannot always depend upon the prudence of our patient ; and there are constitutions so disposed, as to take on inflammatory action from the slightest exciting cause. The consequences of inflammation have been already sufficiently alluded to in various parts of this work ; the mode of preventing or treating it when it does occur, after the Operation, will form the subject of the next Section.

But there is one inconvenience that the young practitioner may not anticipate, as I do not recollect to have seen it mentioned by any former Writer on Cataract:—namely, that during the whole period of inflammation, the process of absorption is nearly, if not entirely suspended. It would be easy to account for this phenomenon on that principle of the celebrated Hunter,* that two actions are never carried on at the same time in the same place. But as the present illustration of his doctrine is altogether new, I shall subjoin the following Cases, in confirmation of its truth.

The first, that I shall adduce, is the Case of Hannah Dove, many particulars of which have been already related.†

* See Mr. Hunter's Introduction to his Treatise on the Blood, &c.

† See page 147.

In this instance, when the ruptured Lens in each Eye was scarcely more than half dissipated, the patient was attacked by an epidemic ophthalmia in so severe a manner as to be threatened with the immediate destruction of the organ. During its continuance, the absorptive process remained apparently stationary. By the use of active antiphlogistic remedies, the inflammatory symptoms were eventually subdued ; on the cessation of which, the absorption of the Cataracts went on so vigorously, that in a very short period there was not a vestige of either left ; the renewed action of the absorbents having accomplished, in a few days, more than they had before effected in as many preceding weeks.

Somewhat analogous to the above, is the Case of the Countess Dowager Spencer's female attendant, upon whose left Eye, at

the desire of her Ladyship, I operated two years ago for lenticular Cataract. Although a highly diseased and debilitated subject, and far beyond her meridian, the Operation excited very trifling inconvenience, and the absorption of the opaque Lens was proceeding equal to my most sanguine expectations, when unfortunately, a very distressing Hemicranium occurred, which, like the Ophthalmia in the former instance, at once interrupted the further absorption of the Cataract.

This accessory complaint was so violent, as to resist the bark, arsenic, and various other medicines, for many successive weeks. At length the paroxysms became milder, and finally terminated. At this time there existed so large a portion of the unabsorbed Cataract, as to render the sight exceedingly imperfect. But in the course of two days,

the whole of the opaque Lens had become so completely removed, that she was capable of distinguishing objects, as well as persons usually are who have lost the Crystalline; and by the use of proper convex glasses, could read the smallest print with perfect facility.

Among many others, the above histories show, that the absorptive process in the Eye may be in a great measure, if not altogether suspended, in consequence of a new series of actions set up in the part, on the cessation of which it may be again renewed with proportionally augmented energy.

Whilst, therefore, we are thus instructed to prevent by every means the occurrence of inflammation after the Operation, we should avail ourselves of one lesson, which we may draw from the above Cases: namely, that if the absorbents do not, on the *decline* of the inflammatory symptoms, *immediately*

manifest such a disposition, we are not warranted in expeeting that it will arise spontaneously hereafter. Under this impression, when the progress of absorption, after the free disturbancee of the Crystalline, and laceration of its Capsule, has seemed languid, I have not scrupled to apply such stimuli to the Eye, as, by exciting a slight degree of irritation, might promote the absorptive process. The success of this method has induced me, on some occasions, to prefer it to repeating the Operation, especially in very young subjeects.

A Physician, some time since, brought for my inspection, more as a matter of curiositay, than from any expeetation that the accident would admit of relief, a poor boy, about eleven years of age, who had been lately apprenticed to a Shoemaker. Not having yet aquired the dextrous ma-

nagement of his awl, he had inadvertently run its point, through the Cornea of his right Eye, into the very substance of the lens. The consequence was the sudden formation of Cataract, with the usual degree of accompanying blindness. He was immediately conveyed to a General Hospital, where measures calculated to arrest the progress of inflammation were judiciously adopted. In the course of four or five weeks, he was discharged free from every symptom of irritation, but with scarcely any sense of light. A fortnight afterwards he was brought to me, when the Conjunctiva appeared natural, the Cornea also perfectly transparent, except at the punctured part, where there existed a small circumscribed opacity. The Iris though moveable, from having formed a partial adhesion to the Capsule of the lens, was irregular in its pupillary margin. A

very considerable portion of the opaque Crystalline hung projecting through the wound of the Capsule into the anterior chamber of the Eye.

Having before met with a somewhat similar Case, which had terminated favourably, and being well aware how readily the Lens is absorbed when freely communicating with the aqueous humour, I ventured to predict, that the Cataract would, in all probability, disappear without an Operation, and the boy, in consequence, regain his sight ; suggesting at the same time, that this event might be accelerated by the assistance of art.

The Case being left to my own treatment, two active doses of a purgative and a stimulant lotion were prescribed. The success of these remedies was very striking. In a few days the central portion of the opaque Lens had been completely absorbed, and there

was an aperture sufficient in size to admit of his seeing small objects very distinctly. By pursuing the same plan a week longer, the entire Crystalline was absorbed, and vision in consequence recovered with a degree of perfection, equal to what it ever is after the most successful Operation for Cataract.

Another Case, of a similar description, soon afterwards came under my observation. A thorn passed through the pupil of a boy, nine years old, with such violence, as to produce Cataract. Probably the injury, which the Lens had sustained, would have been sufficient to ensure its absorption, but for the violence and duration of the subsequent inflammation. From the obstinacy of the parents, no remedies were applied to lessen the symptoms, which continued so long, and at last subsided so gradually, that the inaction of the absorbents became habitual. As

the parents remained inflexible in their determination, there is too much reason to fear that, as generally happens under such circumstances, the sight has not been recovered. Whereas, by a vigorous mode of subduing the inflammation, in all probability absorption would have followed ; or, if this plan had failed in the first instance, the absorbents might afterwards have been roused into action by proper stimuli.

It will not be understood from the above remarks, that we are to feel any anxiety at the slowness with which a comminuted Cataract is sometimes absorbed. What has been said, refers rather to the total inaction of the absorbents. In common Cases, it is of little importance, whether vision be restored a few weeks sooner or later.

During the progress of absorption, we shall always be able to form a satisfactory

prognosis as to the ultimate issue; and if this be favourable, the patient should be instructed to submit with cheerfulness to a temporary retardation of his recovery. He may indeed, with truth, be assured, that he will probably receive the full impression of light and objects, as soon as the Eyes are in a condition to bear it with impunity.

The following Cases show how unfit the Retina is to be suddenly exposed to the strong glare of light, after it has been long intercepted by a Cataract.

Mrs. C. for many years an inmate in the Duke of Newcastle's family, upon whom I operated two years ago for reticulated capsular Cataract, was enabled *instantly* after the Needle was withdrawn, to see very minute objects. The pupil, before the Operation, had been so constantly dilated, that an eminent Practitioner declined undertaking

it, from an apprehension of *Gutta Serena*. She felt scarcely any uneasiness from the introduction of the Instrument. But the pain she endured by the *sudden* free transmission of light to the Retina was truly distressing. And although the event proved that no morbid affection existed in any part of the organ, she became capable, by slow degrees only, of bearing the stimulus of strong light, or application to reading or writing.

Mr. Porter, of Bethnal Green, was also afflicted with a Cataract in the left Eye, of a description very similar to the preceding. I performed the Operation in June 1811, with the effect of *immediately* restoring his lost sight. In this instance, as in the former, the same inconveniences ensued, and for several months prevented the comfortable use of the organ; though I never recollect having seen an Eye, which, after

the most successful Operation, exhibited a more animated or healthful appearance.

Thus the *gradual* manner in which patients regain their sight after this new method of operating, so far from affording any solid objection against the process, as the advocates for Couching and Extraetion allege, is, on the contrary, one of its strongest recommendations. Though this argument has been hitherto unnoticed, it will be easy to show its force by well known facts. No one can be ignorant how much the Eye suffers from sudden exposure to strong light, after it has been long subjected to a state of comparative darkness. And may not the morbid sensibility, accompanied with a weeping of the Eye, and contracted Pupil, which sometimes follow Couching or Extraction, be partly imputable to this cause? It is true, these dangers may, in a great de-

gree, be counteracted by guarding the organ from the full influence of light, for a certain period, after the Operation. In this case, however, nothing is gained by the *rapid recovery of vision*, but the difficulty of controuling the eager wishes of the patient, which, under the improved mode of treatment, he has not the power prematurely to indulge.

Although in describing the Operation, p. 154, it was proposed as a general rule, that the Needle should be introduced into the Eye, *one line* behind the Cornea, there are cases in which the distance must be somewhat varied.

It is a certain fact, though not generally known, that in the congenital Capsular Cataract, wherin the whole, or the greater part, of the opaque Lens has been absorbed, the Iris will be often found to have retired farther than ordinary towards the vitreous hu-

mour, and even to be fixed there by an adhesion of its posterior surface to the Capsule of the Crystalline. If the *straight* Needle, under such eireumstances, is made to penetrate the Eye in the usual manner, there will be great danger of wounding the Iris, and of detaehing it from the Corpus Ciliare. This ean only be avoided, by puncturing the Selerotiea farther behind the Iris, or by directing the point of the Instrument obliquely baekward. Should the Cataraet be lentieular, and the Needle sueh as I have reeommended, it certainly ought not to enter more than a line from the junetion of the Cornea with the Selerotiea. For, as Riehter justly observes, the farther back the Needle is made to penetrate the coats of the Eye-ball, the more forward must its extremity neeessarily advanee, and the greater diffiiculty there will be of bringing it trans-

versely in front of the opaque Lens, without endangering the pupillary margin of the Iris, the Ciliary Processes, or the concave surface of the Cornea.

If the case be such as to render the curved Knife or Needle more proper, the Instrument should, as already directed, be passed into the Eye at the distance of at least *two lines* behind the Ciliary Ligament, to facilitate our conveying the point, with safety, before the Cataract. I say nothing respecting the danger of wounding the aponeurosis of the recti muscles, as the improvements of modern Surgery have relieved us from the groundless fears of the Antients on this subject.

The effusion of a small quantity of blood during the Operation, though of little consequence, will sometimes embarrass the young Practitioner, and may alarm the at-

tendants. It should therefore always be kept in mind, that the long Ciliary artery usually pursues its course on the *middle* of the external convexity of the globe, between the Choroides and the Sclerotica ; and that it may almost always be avoided by introducing the Instrument a little below the transverse diameter of the pupil.

SECTION X.

ON THE TREATMENT PREVIOUS, AND
SUBSEQUENT, TO THE OPERATION.

IF the general health of the patient is good, and the Eye, as it ought to be, in a fit state for the Operation, the long and tedious preparation formerly enjoined without any discrimination, is not only superfluous, but in some instances absolutely prejudicial. In ordinary cases, it may be safer to restrain the diet for a few days more or less according to the constitution and habits of the individual, and to direct a dose of some saline aperient the day before, and the day after the Operation.

Should the subject be a child, or an adult of a timid disposition, or liable to spasmodic affections, a full dose of tinct. opii.

given an hour previously to the introduction of the Instrument, will be found useful to allay fear, and lessen irritability.

As a local application after the Operation has been completed, I have found, by experience, that a dossil of lint, laid immediately upon the Eye-lid, and kept on by a dry compress and circular linen bandage, is on several accounts preferable to every kind of unctuous or spirituous dressing.

An erect posture being in these cases more favourable than a recumbent one, it will be better for the patient to sit up, if he remain quiet, than to be confined to his bed. The antiphlogistic regimen should be continued for a few days, with greater or less rigour according to circumstances, until the slight effects of the Operation have entirely subsided.

It is scarcely necessary to add, that the

Eyes should not, for a while, be exposed to a strong glare of light. The period, however, for keeping them covered, must depend on the time the disease has existed, and the degree of light which has been previously admitted to the Retina, on the season of the year, the state of the weather, and the mildness or violence of the attendant symptoms. In a darkened Room the bandages may be removed in a day or two; for the sooner the organ can, with safety, be released from confinement, the less will be the danger of subsequent swelling, or inversion of the Eye-lids; which I have known to occur from the local pressure having been too great, and too long continued. The contact of cool air is not only very grateful to the Eye, but likewise conduces to the removal of the remaining irritation of the Conjunctiva, and lachrymal gland.

If the Cataract, for which the Operation has been performed, was *lenticular*, the pupil should be kept dilated, for some time, by the occasional application of Belladonna to the appendages of the Eye, which will be an effectual means of guarding against any tendency to adhesion, or contraction of the Iris.

But, if the disease has been of the *fluid* species, this remedy is unnecessary, because the pupil will remain, for some weeks after the Operation, sufficiently enlarged.

On the supposition that no untoward symptoms arise, the above directions contain all that need be advanced on the subject of after-treatment. As there is, however, in every person some peculiarity of constitution, it is always adviseable to avail ourselves of the assistance of the Family

Practitioner, by whose opinion, our proceedings should be much influenced.

But with whatever skill the Operation may be performed, and whatever precautions may be used, we must not flatter ourselves that pain and inflammation will, in every instance, be prevented. I can, however, with truth assert, that when the Operation is conducted in the manner I have recommended, these consequences will very rarely occur.

When inflammation does take place, it should, on its first approach, which is marked by pain and unusual redness of the Conjunctiva, or serous effusion under it, be combated by general and local remedies, employed with a degree of vigour proportioned to the threatened danger. A copious bleeding at the very commencement of the attack, if it should not altogether stop, will

always lessen the violence of the subsequent symptoms. If the pulse rises, and the pain recurs, the bleeding must not be delayed, but be repeated, *immediately*, to an extent indicated by the symptoms, rather than by the quantity of blood abstracted. A further repetition of the venæsection, except in very urgent cases, will seldom be required.

Unless when the Iris is the principal seat of the inflammation, or when the temporal artery beats with unusual force, I have not found that the division even of its trunk produces such decided benefit, as bleeding from the arm by a large orifice ad deliquum.

A full dose of Submuriate of Mercury and Jalap, exhibited as soon as convenient after the bleeding, will materially aid its effects. The bowels should afterwards be kept open by a combination of Antim. Tartar. with a saline aperient, regulated according

to the exigency of the occasion. For the object of purging, as I have elsewhere* more fully explained, is not only to produce an evacuation, but also to diminish the velocity of the circulation, and to excite an action in a distant part of the body.

With respect to the Antimon. Tartar. given in doses sufficient to keep up an almost constant vomiting for several successive hours, I have known it, thus administered, induce, in plethoric habits, a dangerous determination to the head; which in one instance of acute ophthalmia would, probably, have terminated in apoplexy, had not that event been fortunately obviated by a considerable discharge of blood from the nose. In addition to this critical haemorrhage, the violent straining caused a sudden

* Practical Treatise on Weakness of Sight, Second Edition, page 73.

rupture of the over-distended vessels of the Adnata, and in consequence a most frightful Chemosis, without affording any alleviation of the symptoms. This powerful medicine not only weakens the stomach exceedingly, but also induces a far greater prostration of strength, than the method of treatment above recommended.

When the Cornea appears unusually full, and the patient expresses a sense of extreme pain and great tension in the Eye-ball, which is, at the same time, impatient of the slightest pressure, the evacuation of the aqueous humour, as originally proposed by Mr. Wardrop, will in general rapidly alleviate these distressing symptoms. While I give that Gentleman full credit for a new and very useful Operation, I am sure his candour will excuse my suggesting a few cautions, to be observed in ordinary cases,

which I do not recollect to have met with in his desription of the mode of performing it.

The Instrument must be introduced through the Cornea, near to its junetion with the Sclerotica, lest a future cicatrix should interrupt the free passage of the rays to the pupil. As it is now aseertained that the Iris, in a natural state, is not, as was formerly believed, in any degree convex, the Instrument should be passed in a transverse direction parallel with the plane of its anterior surface, for a very ineonsiderable obliquity will, in some instances, endanger the Capsule of the Lens, the Iris, or the concave surfaee of the Cornea. If the former be wounded, inflammation with its consequenees may supervene. Some time ago, a Gentleman consulted me for a Cataract, produced in this manner by a Surgeon of eminence.

But if the Iris be injured, the mischief is often much more serious. I lately saw an instance of this kind, in which the Cornea had been punctured several times for an Ophthalmia; in my opinion very unnecessarily. The patient, instead of being relieved, had her pains aggravated after each Operation. Upon an accurate inspection of the Eye, I discovered that the Iris had been actually touched by the point of the Instrument, as it had, probably, been each time it was introduced.

When the organ is very irritable, the anterior chamber small, and the Cornea somewhat opaque, there are few Operations which require greater care and nicety, to execute safely and successfully, than this apparently simple punctuation of the Cornea.

In the mean time, we should be attentive to every method calculated to re-

lieve pain by topical remedies. So long as the vessels of the Eye are in a state of violent excitement, the frequent use of a fomentation, consisting of simple water, poppy-head decoction, or what is preferable to either, an infusion of Digitalis, in the proportion of 3*j* of the herb to 1*bj* water, of a warmth as great as can be comfortably borne, furnishes, I believe, the best local application.

The *topical* use of Digitalis is the only form in which I would recommend that precarious and dangerous medicine. Given internally, it will often deceive the Practitioner. For while the action of the heart and arteries is, in general, reduced, and the pulse in consequence lowered, the local inflammation not unfrequently continues unabated.

All kinds of stimulants, both local and general, should be studiously withheld.

It is always useful to smear the edges and integuments of the Eye-lids at bed-time with some *mild* unctuous substance, to protect them from the effects of the tears, and to prevent the agglutination of the Tarsi.

Such are the general directions I would offer during the stage of high inflammation; and I cannot conclude without remarking, that there is much greater danger in pursuing them with timidity, than in carrying them even to excess.

When the more active and dangerous form of inflammation is by these means subdued, the disease, if it has not entirely subsided, may be called *Chronic*. At this time the Practitioner should be particularly diligent and frequent in his attendance, especially if he has not seen the case from

the beginning. To ascertain the precise period when the acute stage of inflammation ceases, requires nice discrimination, but is of considerable importance, as the plan of treatment must then be wholly altered. In general, however, I would observe, that whenever there are any doubts on the subject, it will be much safer to persevere longer in the antiphlogistic remedies, than prematurely to desist.

If the complaint should become chronic, an event which will rarely happen, except from the too late or timid use of the above means, it may be known by the following symptoms. There will be some fulness of the vessels of the Conjunctiva, a dull instead of a pungent pain, a redness approaching to purple, in lieu of the crimson appearance of the acute stage ; far less, if any, intolerance of light, and a cessation of all feverish symp-

toms. This stage of the complaint must be variously treated, according to the constitution of the patient, and the peculiarity of the case.

General bleeding will now be unnecessary, if not improper. The local abstraction of blood, by the application of an adequate number of leeches to each angle of the Eye, and within the circle of the orbit, may sometimes be expedient.

Should a turgescency of the palpebral and corneal Conjunctiva still remain, we may be assured, that it is kept up by the force of habit, and by local debility and relaxation of the vessels of the Eye, and not by inflammatory excitement. Under these circumstances, blood may be taken from the overdistended membranous lining of the lower Eye-lid by scarifications with great advantage, as the subsequent adhesive in-

flammation necessary to the healing of the incisions, at an earlier period injurious, will now prove a salutary stimulus to the torpid condition of the parts.

A blister also, applied under the ear or between the shoulders, will be found a powerful auxiliary remedy ; chiefly by exciting a new action in a different part. After these evacuations, the Tinct. Opii vinos, instilled into the Eye every morning and evening, though undoubtedly prejudicial during the high inflammatory stage, will at this time contribute materially to expedite the cure.

In case the edges of the Tarsi are swollen, and adhere together when long in contact, the Ung. Hydrarg. nit. lowered with oil and a little camphor, and applied to them at bed-time, will reduce the swelling, and cor-

rect the vitiated secretion of the ciliary glands.

The warm fomentations must be superseded by moderately tonic and astringent Collyria, which should be used cold several times a day.

After the removal of the bandages, the Eyes should be protected from the impulse of strong light by means of a pasteboard shade, lined with green silk, and made to project only about four inches from the forehead. Great care should be taken not to exclude the cool air of the Room, for it should ever be recollectcd, that it is light, and not air, which occasions pain to an inflamed Eye. On this account, and from their tendency to promote the formation of abscesses between the lamellæ of the Cornea, all sorts of Poultices are objectionable in every species, and in every stage of Ophthalmia.

In the chronic stage of the complaint, the general and local vascular excitements having now subsided, the antiphlogistic regimen may be discontinued, and the patient be allowed gradually to resume his customary diet ; to which Bark may be advantageously added, should it be necessary, to lessen morbid irritability. During the whole period of convalescence, however, and indeed for some time after, if the disorder has been of long continuance, there will be a strong disposition to inflammatory action from apparently slight causes, or irregularities. On the least appearance of such return, an active purgative should be *immediately* administered, with such other remedies as the mildness or violence of the symptoms shall seem to require.

Even under the uninterrupted progress of amendment, the bowels ought for some

time to be preserved in a more than ordinary state of relaxation.

It is almost superfluous to remind the Reader, that some of the foregoing instructions, relative to inflammation of the Eye, refer to a degree of it which will scarcely ever occur after the Operation for Cataract, if skilfully performed. The instructions, however, are applicable to inflammation arising from whatever cause ; and I have thought it my duty to prepare the young Practitioner against every possible contingency. Particular as these, and many of the details in this Work may appear, he will never think them unnecessarily minute, should he meet with, or apprehend, an embarrassing case, in an organ of such incalculable value as that of sight.

FINIS.

